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The literacy skills of New Brunswick francophones: Demographic and socioeconomic issues

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Highlights

New Brunswick francophones have made major progress in terms of education in recent decades. Nevertheless, they continue to perform far less well on proficiency tests than their anglophone counterparts and francophones from Quebec, Ontario and Manitoba. More than 60% of the province's francophones scored in the lower range of the literacy and numeracy scales. Their performance on the PIAAC literacy test is at least 10 points lower than that of the other groups that were looked at. These gaps are nothing new. The literacy and education levels of New Brunswick francophones have traditionally been lower than those of anglophones and of the other francophone groups in Canada. They make less frequent use of their literacy skills than their anglophone counterparts. In addition to reading less frequently at home, New Brunswick francophones were also less likely to do so at work.

The weaker performance of New Brunswick francophones on the PIAAC literacy test is mainly tied to the differences in the sociodemographic composition and literacy-related behaviours. New Brunswick francophones, and in particular those who reside in the north, post lower literacy skill levels because they are less educated and have a lower level of reading-related cultural capital. This is in part because more educated people with more reading-related cultural capital, who tend to have higher levels of literacy proficiency, are more likely to leave the province.

Between 1973-1974 and 2013-2014, New Brunswick lost more than 32,000 people to the rest of Canada. This level of loss through migration may well have an impact on current social and economic issues in the province, especially since interprovincial migrants tend to be highly educated young adults. Some of those leaving for the rest of the country are students who will be pursuing university studies outside the province, others are highly educated young workers who have found a job elsewhere in Canada. Although the contribution of a certain number of immigrants admitted in the rest of the country serves to mitigate the effect of New Brunswick's loss through migration, it is by no means adequate to offset the substantial number of francophone immigrants admitted to the province who left to go to other parts of the country.

This migration exerted a "selection effect" that is having a negative impact on the literacy skills observed among New Brunswick francophones; first directly, through negative net migration involving the most skilled people in particular, and then indirectly, by increasing population aging, another factor associated with lower literacy skills. Because of population aging, francophone communities will likely be confronted with substantial challenges in finding workers, and those challenges could be especially significant for communities in the north. The difficulties in recruiting a skilled labour force could get in the way of business creation. Insofar as having a pool of potential workers whose skill levels match the needs of businesses is a determining factor in job creation, population aging represents a particularly significant issue with regard to the economic vitality of a region.

Because of the lower education levels of New Brunswick francophones as well as their geographic location, they tended to hold jobs that entailed a lower level of complexity. For close to half of all francophone workers in New Brunswick, weak literacy skills are matched with a low level of use of written materials at work. A substantial percentage of francophone workers were having difficulty entering into this "virtuous circle of literacy", and thus their skills, which were low at the outset, are in danger of eroding over time.

The especially low performance of workers in declining industry sectors, with regard to both skills and literacy practices, are worthy of attention. The number of jobs in those sectors, where francophone workers are overrepresented, has been decreasing for a number of years. These workers, who tend to be less educated and older and many of whom reside in the north, could be at even greater risk of losing their jobs or having to retrain for another career. The literacy-related difficulties they face could reduce their chances of successfully transitioning in an economy in which the demand for skills is becoming increasingly sophisticated.

New Brunswick francophones definitely appear to be at a disadvantage on the labour market compared with province's anglophones, as well as with the other francophone groups in Canada, but it is also evident that there were significant disparities within New Brunswick's francophone communities. These economic disparities were largely manifested in a north–south split. The north, where the majority of the province's francophones were concentrated, was therefore especially disadvantaged from an economic perspective. Francophones in the northern part of New Brunswick often live in rural communities and therefore have more limited access to activities and infrastructures that could facilitate the adoption of practices conducive to the maintenance of skills.

Clearly, the negative balance of New Brunswick's francophone population with regard to interprovincial migration is essentially because of the situation in the north of the province. This illustrates the specific difficulties faced by this region in retaining francophones and attracting francophones from the rest of the country. While one-third of francophones lived in the Moncton area, close to two-thirds of recent immigrants had settled there. Conversely, the north had over half of the province's francophone population but became home to only 20% of immigrants admitted between 2000 and 2011. There is thus reason to wonder whether immigration could add to the significant regional disparities that already exist among the various francophone communities in the province and to what extent the north could benefit from the contribution of new immigrants as a way of revitalizing the communities in this region.

Finally, note that the influence of English in the lives of francophones residing in mostly anglophone communities can also be seen in the language that francophones chose to take the PIAAC proficiency tests. Just over 45% of New Brunswickers whose first official language spoken was French took the tests in English.

Introduction

Literacy is a key component of Canada's social and economic development. At work and in their daily lives, Canadians have to navigate through a growing flood of information stemming from the major technological changes of the past few decades. As a result, a strong ability to understand and process information is proving increasingly necessary not only as a springboard toward acquiring more advanced skills, but as a means to function effectively in an increasingly complex society. This trend shows no signs of abating, as many jobs held by unskilled workers are gradually being automated or relocated and the use of information technology is expanding into every facet of our lives.

The economic advantages associated with having a high level of literacy are undeniable. Being in the labour market allows individuals to put their skills to use, which can result in higher income and greater professional validation. In fact, strong information processing skills are associated with higher incomes and a lower risk of being unemployed (OECD, 2013). The labour market provides many opportunities to use these skills, which helps individuals maintain and even improve them. In addition to the personal advantages associated with high levels of proficiency, there are also important collective advantages: as a driver of economic prosperity, literacy facilitates the structural and technological changes needed to boost productivity and to help businesses remain competitive (OECD, 2013).

Literacy also affords numerous cultural advantages and is therefore of special importance to minority francophone communities. Literacy is associated with integration and active participation in society; individuals with higher literacy are more likely to report that they are in good health, to think that they have an influence on political processes, to participate in volunteer activities or to be involved with various groups and to place trust in others (OECD, 2013). According to Wagner (2002), being literate "is not just a matter of being proficient in the written language; it also means being fluent in the spoken language and, in particular, having the underlying cultural background. Literacy is a tool for mastering a culture's symbolic universe." Literacy is therefore a key element in the transmission of culture to subsequent generations and is thus integral to the vitality of the French language and of minority francophone communities.

In Canada, francophones have lagged behind in literacy and education for many years. In the 1960s, the Royal Commission on Bilingualism and Biculturalism shed light on major socioeconomic gaps between the country's francophones and anglophones, with regard to education and income in particular. However, recent studies have revealed that these gaps have for the most part been closed:[1] in most provinces and territories, the socioeconomic gaps between francophones and anglophones are practically non-existent. In some cases, the situation is even reversed, with the socioeconomic conditions of francophones comparing favourably with those of anglophones. This is especially true when we take a closer look at the younger age groups.

The same trends can be observed with regard to literacy. The results of the Survey of Literacy Skills Used in Daily Activities (1989), the International Adult Literacy Survey (1994), the International Adult Literacy and Life Skills Survey (2003) and the Programme for the International Assessment of Adult Competencies (2012) indicate that the gaps between francophones and anglophones that were initially observed have been eliminated in the vast majority of cases, for young people in particular. New Brunswick is a notable exception.

New Brunswick is home to nearly a quarter of a million francophones,[2] representing a quarter of Canada's French-speaking population outside Quebec, and has a strong francophone tradition that dates back to the early days of the French colonization of Acadia. In light of their historically lower education levels, literacy is a particularly significant issue for New Brunswick's francophone communities. The surveys referred to earlier have highlighted the lag experienced by the province's francophones from the standpoint of skills as well as a number of other factors that could have a bearing on skill levels.

1. See the series of portraits of official language minorities in Canada published by Statistics Canada between 2010 and 2012.
2. Based on the criterion of first official language spoken (FOLS), with equal distribution of the "English and French" category between the "English" and "French" categories. In addition to being the definition used by the Government of Canada for the purposes of implementation of the *Official Languages Act*, this criterion is widely used in the field of research on official-language minorities.

Why have these gaps between francophones and anglophones persisted in New Brunswick when they have been almost eliminated elsewhere in Canada? The population's skills are central to social and economic policy in New Brunswick. Investments in education, including continuing education, attest to a desire on the part of the different levels of government to increase the skill levels of their population. The 2012 New Brunswick Speech from the Throne reflected the provincial government's concerns about skills:

> *Addressing the skills gap and ensuring New Brunswick has a workforce with the right skills for the labour market continues to be a top priority for your government. A key component in rebuilding New Brunswick is our human resource capacity and ensuring the availability of a skilled and globally competitive labour force. [...] Despite the fiscal restraint your government has demonstrated since taking office, your government has continued to invest in our greatest resources: our people. The need for highly qualified employees is the basis of strengthening and diversifying our economy.*

However, to be a driver of prosperity, skills development cannot be looked at in isolation from the economic and social context of the New Brunswick population. The province's francophone population is also facing major challenges relating to its socioeconomic and demographic circumstances. The most recent recession compounded the changes taking place in a number of the province's key economic sectors, leading to an even greater dichotomy between the more rural and francophone north and the more urban and anglophone south. In addition, not only do the members of New Brunswick's francophone communities tend to be older, but their migratory patterns are generally negative as well, particularly when it comes to attracting French-speaking immigrants and retaining highly educated young adults. These dynamics serve to impede the growth of the francophone population, resulting in a decrease in the number of francophones in some regions.

In recent years, the Government of New Brunswick has adopted a variety of strategies to promote the economic and social growth of its communities through economic development, skills development and population growth. While these strategies may implicitly suggest that these issues are closely related, their interconnections are complex and are not well understood. What are the demographic and socioeconomic factors that account for the relatively low levels of literacy skills observed among New Brunswick francophones and the persistent nature of this shortfall? Literacy issues cannot be studied in isolation from the other challenges facing New Brunswick society or from the province's economy. Economic and demographic dynamics have a definite impact on a population's skill level. Through migration, highly skilled individuals are able to maximize the benefits of their skills by moving to places that offer better socioeconomic conditions or opportunities to upgrade their skills. Areas with strong economies are likely to attract such migrants, to the detriment of other less dynamic areas. For the latter, out-migration is likely to increase population aging, which is generally accompanied by an erosion of skills.

The purpose of this analytical report is to identify the linkages among demographic trends, economic dynamics and literacy skills for New Brunswick francophones. Going beyond general observations about the gaps and specific challenges that characterize this population, which have been extensively documented elsewhere, what can be done to improve the situation of the province's francophones? Statistics Canada's objective in support of official language minority communities is to ensure that communities and decision-makers have access to the statistical information they need to promote the vitality of official language minorities.

The first part of the report presents the most recent profile of literacy, numeracy and problem-solving skills in a technology-rich environment as it relates to New Brunswick francophones, using the data from the Programme for the International Assessment of Adult Competencies (PIAAC). The first step is to assess the skill levels of New Brunswick francophones and to compare them against those of their anglophone counterparts and certain other francophone groups in Canada. The first section also endeavours to illustrate the major trends and specific factors that account for the gaps observed in the case of New Brunswick francophones.

The second part of the report looks at the major demographic trends that characterize New Brunswick's francophone population, focusing mainly on population aging, intraprovincial and interprovincial migration trends and the role of international immigration. These major trends are outlined, as are, more importantly, the ways they interact with the level of literacy and numeracy proficiency of the francophone population. The focus in the third part is similar in that it begins by detailing New Brunswick's labour market and the role of francophones within it. The reciprocal influences among skills, demographic phenomena and the structure of the labour market documented therein shed light on the vicious circle that New Brunswick francophones find themselves in.

1. Literacy proficiency among New Brunswick francophones

The concept of literacy has changed considerably over the past 50 years. Historically, literacy was simply measured by way of education level. Although education is the primary factor in literacy skills, surveys on literacy[3] have shown that a number of other factors are also associated with these skills. In fact, regular use of them, at work in in everyday life, becomes more and more important as the years pass from the time of an individual's initial education. These surveys have also revealed gaps, sometimes large ones, in the literacy levels of individuals with the same education level, thus supporting the idea that other factors come into play in the development and maintenance of reading proficiency.

For these reasons, the concept of literacy has gradually shifted to become more comprehensive (Wagner 2002). The tendency to make greater and greater use of written information of increasing complexity has led to a more all-encompassing definition of literacy, which entails much more than simply being able to read and write. This new concept focuses on the application of these skills to a broad range of real-life situations for the purpose of reaching specific objectives. In the 1990s, the concepts of numeracy and problem-solving emerged as ways of assessing an individual's ability to process mathematical information and to solve concrete problems. The problems in question call on different cognitive processes such as situational judgment and research.

With electronic tools becoming more and more widely used at work and in daily life to process the information arising from recent technological advances, the importance of integrating literacy, numeracy and problem-solving skills has become evident. Accordingly, the Programme for the International Assessment of Adult Competencies (PIAAC)[4] has integrated these technological tools for the purpose of assessing problem-solving skills, not to measure an individual's ability to use these tools as such but rather to assess his or her ability to apply them in performing concrete tasks.

The results of the PIAAC tests indicate that there are large gaps between francophones and anglophones in New Brunswick. They also reveal disparities between New Brunswick francophones and francophones elsewhere in Canada. On average, the literacy and numeracy skills of New Brunswick francophones[5] are lower than those of other Canadians. These gaps are nothing new. The literacy and education levels of New Brunswick francophones have traditionally been lower than those of anglophones and of the other francophone groups in Canada.

In that regard, the PIAAC results are consistent with what is observed elsewhere: that socioeconomic gaps between francophones and anglophones persist in New Brunswick, whereas they have tended to almost disappear elsewhere in Canada.[6] The purpose of this report is to help clarify the reasons for this. As a first step, PIAAC data was used to update the comparisons in terms of literacy, numeracy and problem-solving in a technology-rich environment. This major survey was conducted by Statistics Canada in 2011 and 2012 in collaboration with the Organisation for Economic Co-operation and Development (OECD) and over 20 different countries. PIAAC directly measured the literacy, numeracy and problem-solving skills of a representative sample of more than 27,000 Canadians between the ages of 16 and 65 to shed light on how these information processing skills enable an individual to participate successfully in the labour market and in society. Thanks to the support of a number of federal and provincial government stakeholders, the Canadian component of PIAAC involved a sufficient number of observations to produce reliable estimates for specific subpopulations of interest, including the official-language minority communities in New Brunswick, Quebec, Ontario and Manitoba.[7]

The first objective of this chapter is to introduce PIAAC and to present the results of New Brunswick francophones on tests of literacy, numeracy and problem-solving proficiency in a technology-rich environment, largely by way of comparison with those of their anglophone counterparts, francophones in Quebec, Ontario and Manitoba, and Canadians as a whole. The second objective is to explore specific factors that may account for the fairly low levels of literacy skills observed among New Brunswick francophones, namely education and reading habits.

3. Literacy Skills Used in Daily Activities (LSUDA, 1989), International Adult Literacy Survey (IALS, 1994), International Adult Literacy and Skills Survey (IALSS, 2003) and Programme for the International Assessment of Adult Competencies (PIAAC, 2012)
4. For more details on PIAAC, see Statistics Canada (2013).
5. See Appendix 1 for the definitions of francophone and anglophone used in this report.
6. We are referring here primarily to the differences in education and income identified by the Royal Commission of Inquiry on Bilingualism and Biculturalism in Canada in the 1960s. The series of profiles of official language minorities in Canada, published by Statistics Canada between 2010 and 2012 on the basis of the data from the 2006 Census and the Survey on the Vitality of Official-Language Minorities (SVOLM), attest to these gaps. We will return to this point later in this chapter and in subsequent ones.
7. Record linkage was performed between PIAAC and the 2011 Census. This innovative strategy allowed for use of the first official language spoken as identified in the census to define language groups. Appendix 3 describes the record linkage in more detail.

1.1 Programme for the International Assessment of Adult Competencies

A number of studies have established connections between a high level of proficiency and a series of positive social and economic circumstances, such as higher income and more active social participation. A strong ability to understand and process information is vitally important to functioning in a knowledge-based society such as Canada's. In fact, the Government of New Brunswick highlighted the vital importance of skills in the *New Brunswick Labour Force and Skills Development Strategy: 2013-2016* (Government of New Brunswick, 2013):

> *Our economic success is dependent upon a strong, responsive and educated workforce since most jobs today require a post-secondary education. [...] We must maximize the skill sets and ensure full participation in the labour market for all who are able to play an even greater part in New Brunswick's economic development.*

Previous studies on literacy have reported that New Brunswick francophones lag far behind in terms of skills. The Survey of Literacy Skills Used in Daily Activities (LSUDA), carried out by Statistics Canada in 1989, was the first to highlight the divide between New Brunswick francophones and anglophones in terms of skills. While 63% of the province's anglophones posted scores that placed them in the top level on the reading scale,[8] this was the case for only 57% of francophones (Corbeil, 2000). At the same time, 59% of anglophones were at the top level of the calculation scale, compared with only 44% of francophones.

In 1994, the International Adult Literacy Survey (IALS) reaffirmed the results of the LSUDA. In Ontario, francophones continued to perform less well than anglophones; the proportion of francophones in the upper range of the three proficiency scales was at least 11 percentage points lower than for anglophones. Because of oversampling of francophones in New Brunswick, the IALS also showed that factors such as education, age, and reading habits and behaviours[9] are important in explaining the disparities between the province's francophones and anglophones, although they do not account for all of these differences (Corbeil, 2000).

At the turn of the millennium, the International Adult Literacy and Life Skills Survey (IALLSS) revealed that the skill levels of New Brunswick francophones were relatively stagnant. In fact, two-thirds of the province's francophones scored below Level 3 on the prose literacy scale. They also continued to engage less regularly in reading-related activities such as going to libraries, reading different types of documents and owning books at home. The 2003 IALLSS also showed that the weaker performance of New Brunswick francophones compared with those of their anglophone counterparts stemmed largely from a lower education level and less regular reading and writing habits (Corbeil, 2006).

These surveys thus reveal that weaker performance by New Brunswick francophones on proficiency tests was an ongoing issue, until the early 2000s at least. According to PIAAC data, in 2012 the performance of New Brunswick francophones was still much lower than that of their anglophone counterparts and below that of the francophones subject to oversampling in PIAAC, as well as the Canadian population as a whole.

PIAAC is a major survey that was conducted by Statistics Canada in 2012 through a partnership involving Canada, the OECD and more than 20 other countries. The aim of the survey was to produce comparable data in order to provide a better understanding of how information processing skills in adults are tied to successful participation in the labour market and society in the 21st century. To that end, more than 27,000 Canadians[10] aged 16 to 65 responded to the survey between November 2011 and June 2012. Thanks to the contributions of a number of federal and provincial government departments, the PIAAC sample size also made it possible to produce reliable estimates for all provinces and territories as well as for certain subpopulations of interest such as Aboriginal people and official language minorities.

PIAAC is divided into three parts. Respondents began by completing a contextual questionnaire designed to elicit their sociodemographic characteristics, such as education level and country of birth. Psychometric tests based on item response theory were administered to obtain a direct measurement of respondents' skills relating to three facets of information processing: literacy, numeracy and problem-solving in technology-rich environments.[11] These skills are very important because, in addition to being needed to fully integrate into the labour market, they

8. For the LSUDA, the literacy scale had four levels, while the calculation scale was divided into three levels.
9. The connections between these factors and the performance of New Brunswick francophones on the PIAAC proficiency tests are looked at later in this chapter.
10. In comparison with all of the other countries that participated in PIAAC, Canada's sample was by far the largest.
11. A fourth test, on reading components, was administered to respondents whose reading skills were considered too weak to take the literacy test.

are highly transferable to a variety of social and professional situations. The third and final module of the survey involved the use of these skills at work and in daily life.

1.1.1 Measuring skills in PIAAC

In its conceptual framework, PIAAC defines literacy as "the ability to understand, evaluate, use and engage with written texts to participate in society, achieve one's goals, and develop one's knowledge and potential." Numeracy is defined as "the ability to access, use, interpret and communicate mathematical information and ideas in order to engage in and manage the mathematical demands of a range of situations in adult life." Finally, problem-solving in technology-rich environments is defined as "the ability to use digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks."

The respondents' information processing skills were measured using psychometric tests designed by the *Educational Testing Service* in the United States. These tests place respondents on a continuous scale from 0 to 500. Individuals who place at the lower end of the scale have basic skills that enable them to understand tasks of limited complexity, while those at the upper end can perform tasks such as integrating information across multiple dense texts and reasoning by inference. To make the results easier to interpret, the scales for measuring literacy and numeracy can be divided into five skill levels,[12] which correspond with the actual abilities related to different scores (Table 1.1).[13] For problem-solving, the scale is divided into three skill levels, along with a level for persons who have little or no experience with computers or who failed a basic test on the subject. Since the tests were taken in either English or in French, the respondents' proficiency in the language that they chose has a definite influence on the results.

Table 1.1
Levels of literacy, numeracy and problem-solving in technology-rich environments, by Program for International Assessment of Adult Competencies test score, 2012

Level	Literacy and numeracy	Problem-solving
Level 5	376 to 500	...
Level 4	326 to 375	...
Level 3	276 to 325	341 to 500
Level 2	226 to 275	291 to 340
Level 1	176 to 225	241 to 290
Below Level 1	0 to 175	0 to 240

... not applicable

Source: Statistics Canada. 2013. *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies*. Statistics Canada Catalogue no. 89-555-X.

One limitation of PIAAC in terms of analyzing skill levels by language group is the fact that the first official language spoken cannot be derived according to the standard definition. In fact, information concerning mother tongue and language spoken most often at home is not collected in the same way as for the census, while that pertaining to knowledge of official languages is simply not available directly. Record linkage between PIAAC and the 2011 Census was therefore performed, making it possible to extract information on first official language spoken from the census to determine the language groups that were part of the study.

Through this innovative strategy it was possible to link the information of more than 26,000 PIAAC respondents to the census data, with an overall linkage rate of 95.5%. Because of oversampling of official language minorities, the linked PIAAC sample includes 845 New Brunswick respondents whose first official language spoken was French, a large enough number to look at the skill levels of this population.

While the PIAAC sample size makes it possible to carry out a number of significant analyses of the situation of New Brunswick francophones in terms of skills, it could become a limitation for certain more sophisticated analyses. To overcome this constraint, PIAAC data were used in conjunction with those of the National Household Survey (NHS) to calculate "estimated" literacy scores, which could be used to produce maps at very detailed geographic levels and to estimate the literacy proficiency level of specific subpopulations.

12. An additional category, "Below Level 1," has been added to the five levels.
13. Tables A4.1, A4.2 and A4.3 (Appendix 4) detail the tasks associated with each level for the three skills.

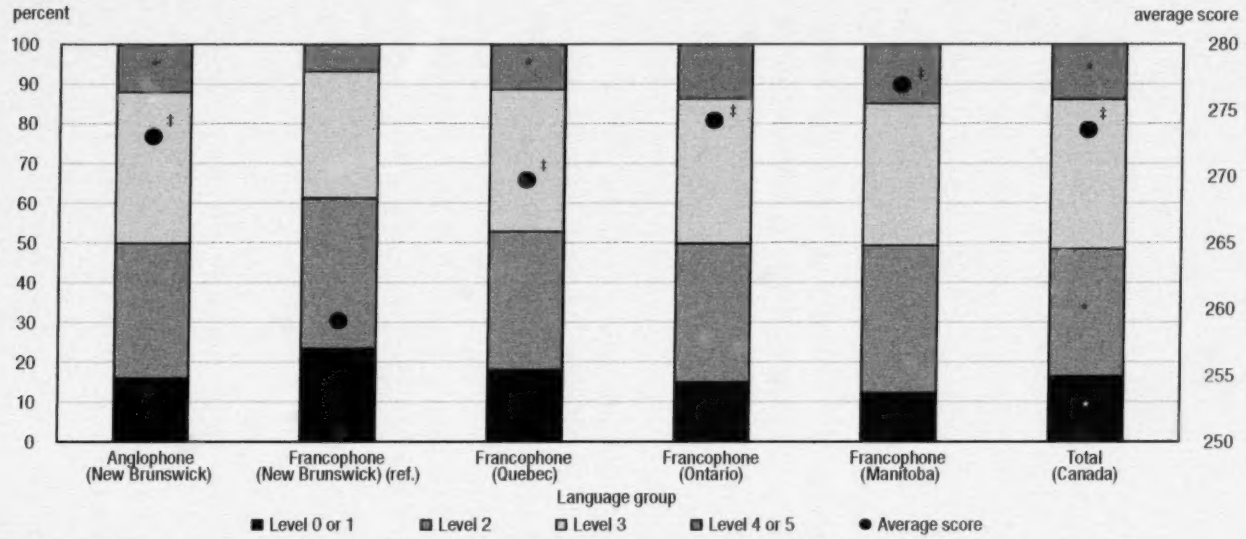
In both cases, estimates were calculated by constructing regression models based on PIAAC that did include only those variables common to PIAAC and the NHS (for example, education level and age). The coefficients obtained through these models were subsequently applied to the NHS data. The coefficients of francophones from the province or territory of birth were used to estimate the literacy scores of interprovincial migrants. Because of the PIAAC sample size, the coefficients used for immigrants and non-permanent residents were estimated on the basis of all immigrants and non-permanent residents in the four Atlantic provinces.

This undertaking therefore drew on both the wealth of information from PIAAC with regard to the study of skills and the very large sample size of the NHS.

1.1.2 Proficiency test results

New Brunswick respondents whose first official language spoken was French achieved an average score of 259 on the PIAAC literacy test, or close to 14 fewer points than that of their anglophone counterparts. This is shown in Chart 1.1, which compares the literacy levels of New Brunswick francophones with those of their anglophone counterparts as well as with three other francophone groups and with Canadians as a whole. It can also be seen that their performance is at least 10 points lower than that of the other three francophone groups that were looked at (francophones in Quebec and the other groups for which oversampling was performed, i.e., francophones in Ontario and Manitoba) and that of Canadians as a whole. Moreover, New Brunswick is the only province in which the gap between francophones and anglophones with regard to their levels of literacy proficiency is statistically significant. However, compared with the 2003 results, the gap between anglophones and francophones decreased slightly, from 7.4% for the IALLSS to 5.6% for PIAAC, with the anglophones still coming out ahead.[14]

Chart 1.1
Distribution of literacy levels (left scale) and average scores (right scale) by language group, New Brunswick, Quebec, Ontario, Manitoba and Canada, 2012



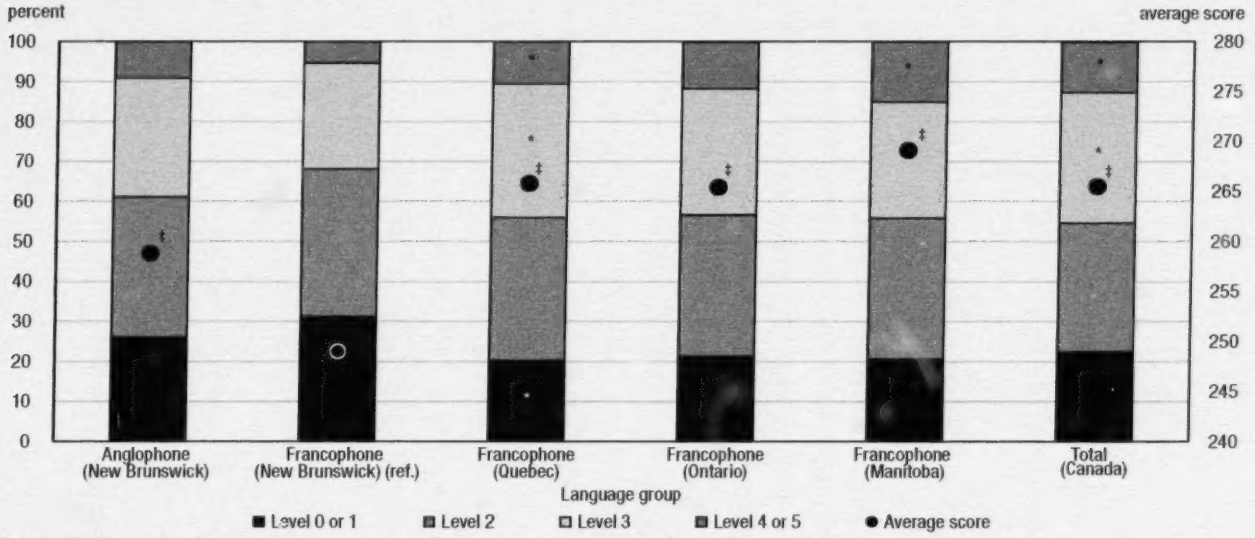
* significantly different from reference category (proportion of New Brunswick francophones) at a 95% confidence level ($p < 0.05$))
‡ significantly different from reference category (average score of New Brunswick francophones) at a 95% confidence level ($p < 0.05$)
(ref.) reference category
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

14. For the purposes of comparison with the 2003 IALSS, language groups are defined on the basis of mother tongue, and only respondents aged 16 to 65 in the IALSS were selected. With PIAAC, the difference between anglophones and francophones was 5.1% in favour of anglophones if the first official language spoken was used.

The gaps between New Brunswick francophones and their anglophone counterparts stem partly from the differences in the numbers at the upper levels of the scale. In fact, 6.9% of francophones placed on Level 4 or 5 of the PIAAC literacy scale,[15] a proportion approximately half that of anglophones (12.1%). The percentage of New Brunswick francophones who did not reach the third level of the literacy scale was just over 60%: more than 10 percentage points higher than the proportion accounted for by the province's anglophones (49.8%) and Canadians as a whole (48.5%). This level is generally used as a minimum benchmark for an individual to be able to function in a knowledge-oriented society such as that of Canada, given the number of positive social and economic outcomes associated with being at this level as a minimum (Corbeil, 2006).

PIAAC results show a similar profile in terms of numeracy. New Brunswick francophones earned an average score of 249 on the PIAAC numeracy test, i.e. 10 points less than their anglophone counterparts (Chart 1.2). However, the difference between the two groups has decreased somewhat since the IALLSS, from 5.2% in 2003 to 3.9% in 2012, again in the anglophones' favour.[16] New Brunswick francophones performed less well in this case also, by a margin of over 15 points compared with the scores of the other three francophone groups as well as Canadians as a whole.

Chart 1.2
Distribution of numeracy levels (left scale) and average scores (right scale) by language group, New Brunswick, Quebec, Ontario, Manitoba and Canada, 2012



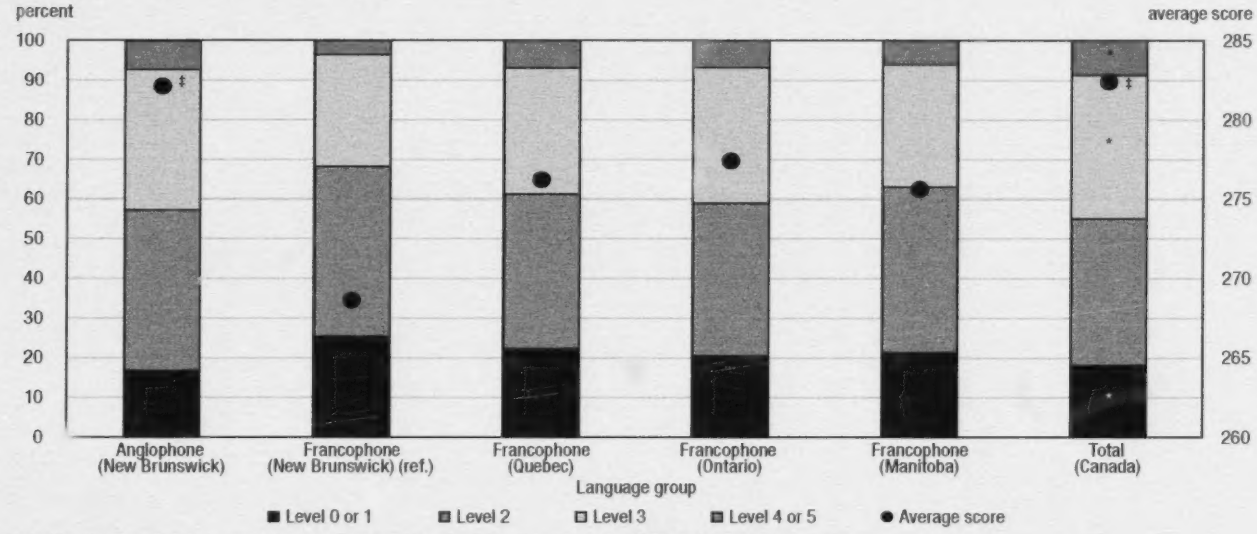
* significantly different from reference category (proportion of New Brunswick francophones) at a 95% confidence level ($p < 0.05$)
† significantly different from reference category (average score of New Brunswick francophones) at a 95% confidence level ($p < 0.05$)
(ref.) reference category
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Once again, the lesser performance of New Brunswick francophones compared with the other language groups stems primarily from the numbers in the upper range of the PIAAC scale. In fact, the percentage of New Brunswick francophones whose numeracy scores placed them in the upper levels of the scale was 5.3%, half that of francophones in Quebec (10.5%) and of Canadians as a whole (12.7%), and about three times less than francophones in Manitoba (15.1%). Close to 7 in 10 New Brunswick francophones scored below the third level of the PIAAC numeracy scale and would therefore be likely to experience difficulties in dealing with mathematical information.

15. Given the small numbers at Level 5, Levels 4 and 5 have always been combined for analytical purposes since the 1994 IALS. These are the upper levels of the scale (see Table 1.1).
16. As with the comparison between the IALSS and PIAAC literacy scores, this analysis is based on respondents aged 16 to 65, with language groups being defined on the basis of mother tongue. In 2012, the difference was 3.8% in favour of anglophones if we choose first official language spoken to define the language groups.

As with literacy and numeracy, the performance of New Brunswick francophones was below that of anglophones (269 versus 282) and Canadians as a whole (282) in the assessment of their problem-solving skills[17] (Chart 1.3). However, although their performance does tend to be lower, the PIAAC sample size does not make it possible to detect statistically significant differences between the scores of New Brunswick francophones and those of the other francophone groups.

Chart 1.3
Distribution of problem-solving levels (left scale) and average scores (right scale) by language group, New Brunswick, Quebec, Ontario, Manitoba and Canada, 2012



* significantly different from reference category (proportion of New Brunswick francophones) at a 95% confidence level ($p < 0.05$)
‡ significantly different from reference category (average score of New Brunswick francophones) at a 95% confidence level ($p < 0.05$)
(ref.) reference category
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Just over one-quarter of New Brunswick francophones did not complete the PIAAC problem-solving test. Although informatics is becoming increasingly omnipresent in respondents' personal and professional lives, these results suggest that a significant portion of New Brunswick's francophone population aged 16 to 65 possesses only rudimentary skills in this area. This situation could present a major obstacle in terms of adapting to the demands of the labour market.

This quick comparison of the literacy, numeracy and problem-solving skills of New Brunswick francophones against those of their anglophone counterparts, the country's other main francophone groups and Canadians as a whole shows that New Brunswick's francophone population is experiencing significant difficulties from a skills standpoint. The province's francophones performed less well than most of the other groups in the study on all three components of information processing skills measured by PIAAC.

Why is this the case? Why do New Brunswick francophones continue to show levels of literacy, numeracy and problem-solving skills in a technology-rich environment that are lower than those of other Canadians? The following section will look at two of the most immediate factors, namely education level and reading habits.

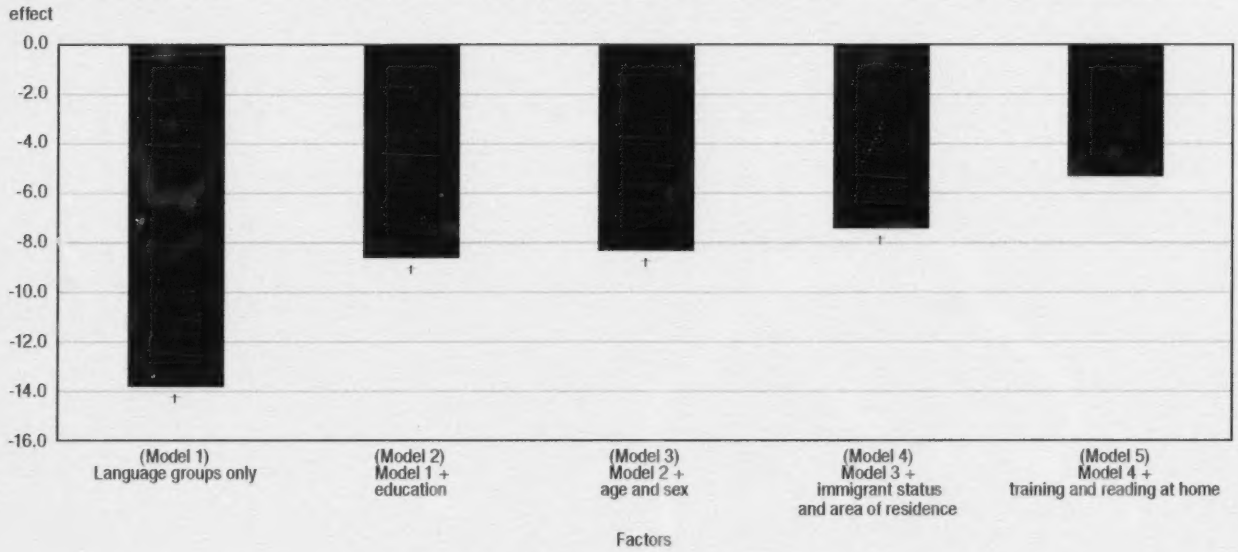
17. Problem-solving scores need to be interpreted carefully given that only those respondents who completed the PIAAC tests online were assessed on this dimension. However, close to 20% of Canadians were not evaluated through the PIAAC computer-assisted test (see Appendix 8). This proportion was 27.6% among New Brunswick francophones. A preliminary analysis revealed that not having been assessed through the computer-assisted test could be associated with factors such as age, education level and literacy and numeracy proficiency (Statistics Canada, 2013).

1.2 The effect of education and literacy practices

As was observed in the 2003 IALLSS, the weaker performance of New Brunswick francophones aged 16 to 65 years on the PIAAC literacy test is also mainly tied to the differences in the sociodemographic composition and literacy-related behaviours between the two language groups. When only these language groups are considered, the average literacy scores of francophones are nearly 14 points lower than those of anglophones, which logically corresponds to the difference observed in Chart 1.1. That difference decreases to just over 8 points, or a decline of almost 40%, when the effect of anglophones' higher education is taken into account (Chart 1.4). At the same education level, New Brunswick francophones still perform less well on the PIAAC literacy test than their anglophone counterparts, although the gap narrows to some extent.

Chart 1.4 illustrates the changes in the differences between the literacy scores of New Brunswick francophones and anglophones after the differing characteristics of the two groups are taken into account.[18]

Chart 1.4
Effect of belonging to the francophone group on average literacy score in relation to different factors, New Brunswick, 2012



† indicates that being a francophone is statistically significant in relation to being an anglophone at a 95% confidence level
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Linear regression

Linear regression is a statistical technique to simultaneously link a continuous variable of interest (such as annual income or years of education), referred to as the dependant variable, with various independent variables. Such modelling can be used to isolate the effects of different variables in order to determine the "net" effect of each independent variable.

The effect of each variable is determined using a regression coefficient that represents the increase or decrease in the value of the dependant variable arising from an increase in a particular unit of the independent variable. For example, in the case of a coefficient whose value is 5, for every one-unit increase in the independent variable, the dependant variable increases by 5. Accordingly, a positive coefficient means that the independent variable is positively correlated with the dependant variable, while a negative coefficient means the opposite. A coefficient of 0 means that the independent variable is not associated with the dependant variable.

18. Because they constitute three essential components of information processing skills, literacy, numeracy and problem-solving skills are closely interconnected. Therefore, the issues pertaining to them are the same overall. Unless otherwise indicated, our analyses will henceforth look specifically at literacy proficiency in order to simplify the presentation of results and eliminate repetition.

The significant albeit partial reduction in the differences with regard to literacy is not at all surprising in light of the differences in education level between the two groups and the fact that, although education is the main driver of literacy skills, other factors can also come into play. However, the scale of the divide that separates francophones and anglophones remains approximately the same even when demographic characteristics such as age and region of residence are taken into account. That said, the differences between anglophones and francophones tend to decrease when we also consider the effect of reading in daily life and participation in training activities—two factors that represent respondents' reading habits. In other words, when the effect of all of these factors is taken into account, the literacy score of francophones is not statistically lower than that of anglophones.

1.2.1 Literacy skills by education level

The literature makes frequent reference to the sometimes substantial variations in performance on competency tests that are tied to a respondent's sociodemographic characteristics. Factors such as education level, age and immigrant status have long been associated with the variations in literacy proficiency that have been observed (Statistics Canada, 1996; Statistics Canada, 2013). We will take a close look at socioeconomic factors in Chapters 2 and 3 in order to report on the specific situation of New Brunswick's francophone population in relation to such factors and to establish connections between the latter and the question of skills. We will begin by looking at education, training and reading habits. Table 1.2 presents the literacy proficiency level of New Brunswick francophones based on educational attainment.

Table 1.2
Average literacy scores of New Brunswick francophones and proportion in the lower range of the proficiency scale,[1] by educational attainment, 2012

Highest certificate, diploma or degree	Average literacy score	Proportion of francophones in lower range of scale
Total	**259**	**61.2**
No certificate, diploma or degree	218*	89.2*
High school diploma or equivalent	261*	64.3*
Postsecondary certificate or diploma below bachelor level	268*	57.0*
University certificate or diploma at or above bachelor level (ref.)	302	21.6

* significantly different from reference category at a 95% confidence level ($p < 0.05$)
(ref.) reference category
1. Below Level 3.
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Education is the main driver of literacy proficiency. School gives children an opportunity to develop the tools they need to understand and perform tasks that require a high level of literacy. Education also makes it easier to enter into the "virtuous circle of literacy" by fostering the development of positive reading behaviour in everyday life and providing access to jobs in which reading features more prominently and in which there are more training opportunities. Therefore, it is not surprising to find a very strong association between education level and literacy proficiency level.

For New Brunswick francophones who held at least a bachelor's degree, the average score on the PIAAC literacy test was just over 300. This performance is much better than that of less educated francophones, whose average score was 268 for those who held a postsecondary diploma below the bachelor's level and less than 220 for those who did not graduate from high school. Moreover, close to 90% of francophones without a diploma were in the lower range of the literacy scale, compared with one in five francophones with an undergraduate degree.

Although fairly low, this proportion nonetheless indicates that a number of New Brunswick francophones experience major difficulties with regard to literacy even when they have earned at least a bachelor's degree. Hango (2014) looked at the issue of lower levels of proficiency among university graduates and showed that factors such as age, being born abroad, field of study and the reading-related cultural capital acquired in childhood are associated with the literacy performance of university graduates. Lastly, the fact that a certain number of highly educated individuals nonetheless experience literacy difficulties serves as a strong reminder that the issues around the development and maintenance of skills go far beyond an individual's initial education.

The association between education and literacy proficiency is therefore not perfect, but it nevertheless remains strong. The education levels of New Brunswick's francophone population are lower than those of the other language groups. Just over 3 in 10 New Brunswick francophones aged 25 or older did not complete high school, a level at least eight percentage points higher than those of the other groups under consideration (Table 1.3). At the other end of the spectrum, 15.0% of New Brunswick francophones held at least a bachelor's degree: less than their anglophone counterparts (17.5%) and the other francophone groups studied as well as Canadians as a whole.

Table 1.3
Educational attainment by language group and region of residence, population aged 25 and older, 2011

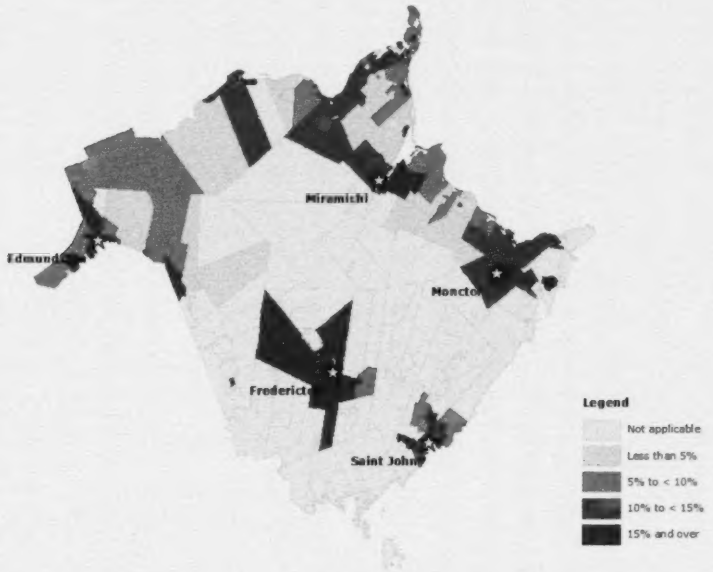
Highest certificate, diploma or degree	Anglophone (New Brunswick)	Francophone (New Brunswick)				Francophone (Quebec)	Francophone (Ontario)	Francophone (Manitoba)	Total (Canada)
		North	Southeast	Rest of New Brunswick	Total				
	percent								
No certificate, diploma or degree	18.3	35.1	26.1	28.4	**31.2**	20.6	18.6	22.4	**17.3**
High school diploma or equivalent	27.8	19.3	19.8	19.3	**19.5**	19.8	22.5	22.5	**23.1**
Postsecondary certificate or diploma below bachelor level	36.4	33.8	34.8	35.0	**34.3**	40.5	36.3	36.4	**36.3**
University certificate or diploma at or above bachelor level	17.5	11.8	19.3	17.3	**15.0**	19.0	22.6	18.7	**23.3**

Source: Statistics Canada, 2011 National Household Survey.

Table 1.3 also highlights some significant regional disparities within New Brunswick.[19] Francophones in the northern part of the province differed from other francophones in the province because of their substantially lower education levels. More than a third of francophones aged 25 or older who lived in the north—nearly 10 percentage points higher than for those in the southeast—had not finished high school (Table 1.3). Conversely, 11.8% of francophones in the north held at least a bachelor's degree, compared with just under one in five francophones living in the southeast part of the province. This difference cannot be attributed solely to the fact that the population is older; although the level of education in the north is considerably higher among young people, they still lag far behind their counterparts in the southeast and the rest of the province. Map 1.1, which presents the proportion of francophones who held at least a bachelor's degree for each census subdivision with a minimum of 100 francophones, illustrates this divide.

19. For analytical purposes, New Brunswick census divisions have been divided into three regions: the north, the southeast and the rest of the province. See Appendix 2 for a breakdown of the census divisions that compose each region.

Map 1.1
Proportion of New Brunswick's francophone population aged 25 and older who held at least a bachelor's degree, by census subdivision, 2011



Note: Data from census subdivisions for which the number of francophones is less than 100 are not presented.
Source: Statistics Canada, 2011 National Household Survey.

New Brunswick francophones have made major progress in terms of education in recent decades. The shortfall experienced by New Brunswick's francophone population in this area can largely be attributed to the low education levels of older generations. The gap that historically separated them from anglophones in this regard has decreased considerably among the younger generations, such that the education levels of francophones in the 25 to 34 age group are now very similar to those of their anglophone counterparts (Table 1.4). One-quarter of New Brunswick francophones aged 25 to 34 held at least a bachelor's degree, bringing them closer to the rates of their anglophone counterparts (25.7%).

Table 1.4
Educational attainment by language group, population aged 25 to 34 years, New Brunswick, Quebec, Ontario, Manitoba and Canada, 2011

Highest certificate, diploma or degree	Anglophone (New Brunswick)	Francophone (New Brunswick)	Francophone (Quebec)	Francophone (Ontario)	Francophone (Manitoba)	Total (Canada)
	percent					
No certificate, diploma or degree	8.7	10.1	10.7	5.1	6.3	**9.3**
High school diploma or equivalent	27.6	23.2	14.4	18.4	24.3	**21.5**
Postsecondary certificate or diploma below bachelor level	38.0	41.7	47.4	40.0	39.3	**37.3**
University certificate or diploma at or above bachelor level	25.7	25.0	27.4	36.5	30.1	**31.9**

Source: Statistics Canada, 2011 National Household Survey.

New Brunswick francophones aged 25 to 34 are nonetheless less educated than their counterparts in the rest of the country. Although one-quarter of New Brunswick francophones aged 25 to 34 held at least a bachelor's degree, the corresponding percentages for their counterparts are significantly higher: over 27% for francophones in Quebec and as high as 35% for Franco-Ontarians.[20] It is therefore possible that the difference between New Brunswick francophones and the other francophone groups from a skills standpoint will continue for a number of years still. In looking at the education shortfall observed for young New Brunswick francophones compared with the province's anglophones, it is important to remember that they remain the least educated francophone group in the country, even for the younger generations.

20. A substantial portion of these graduates live in the Toronto area or the National Capital Region, where there is a concentration of immigrants and interprovincial migrants (including those from Quebec), two populations that tend to be highly educated.

1.2.2 Literacy skills based on literacy practices

Regular use of literacy skills is essential for the development and retention of those skills over time. Indeed, good reading habits may impede the decline in skills that comes with ageing (Willms and Murray, 2007). While education fosters entry into the "virtuous circle of literacy", frequent use of literacy skills throughout life represents the culmination of this process. Previous surveys have shown that New Brunswick francophones have fallen behind their anglophone counterparts with regard to the practice of various reading-related activities such as going to libraries or bookstores (Corbeil, 2006).

New Brunswick francophones make less frequent use of their literacy skills than their anglophone counterparts. Table 1.5 attests to this fact. It shows that the composite index of reading at home[21] for New Brunswick francophones was 43.1. This value is much lower than that of the province's anglophones (50.9) but also those of the other francophone groups in PIAAC as well as Canadians as a whole (53.1). The gap between New Brunswick francophones and their anglophone counterparts is largely the result of the differences in their characteristics. We saw earlier that the francophone population in this province is less educated, and we will see in the next chapter that it is also slightly older. These two factors are correlated with less frequent reading in daily life.

Table 1.5
Practice of certain reading-related activities by language group, New Brunswick, Quebec, Ontario, Manitoba and Canada, 2012

Language group	Composite index of reading at home†	Composite index of reading at work†	Participation in training activities over the preceding year
	average		percent
Anglophone (New Brunswick)	50.9*	43.2*	47.1
Francophone (New Brunswick) (ref.)	43.1	38.2	42.3
Francophone (Quebec)	48.0*	39.9	46.1
Francophone (Ontario)	51.5*	48.4*	57.9*
Francophone (Manitoba)	54.8*	51.2*	65.4*
Total (Canada)	**53.1***	**45.8***	**53.0***

* significantly different from reference category at a 95% confidence level ($p < 0.05$)

† in the Programme for the International Assessment of Adult Competencies (PIAAC), respondents were asked to report the frequency with which they engaged in reading eight types of materials (letters and emails, newspapers, reference materials, etc.) at home and at work. A composite index from 0 to 100 was constructed based on the responses to these questions to measure PIAAC respondents' general reading habits. The closer the index is to 100, the more frequent the respondent's reading

(ref.) reference category

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Moreover, the province's francophones also had fewer books at home at age 16 than their anglophone counterparts. Close to 60% of francophones reported having fewer than 25 books at home when they were 16 years old, a percentage twice that of anglophones. This factor represents a type of reading-related cultural capital that respondents acquired during childhood.[22] When we consider the effect of these factors in addition to other basic sociodemographic characteristics such as region of residence, the differences between francophones and anglophones with regard to reading at home tend to decrease. In other words, if francophones had the same profile as anglophones with regard to these characteristics—which is not the case—there would be no statistically significant difference with regard to reading. Accordingly, the gap is the result of differences in the sociodemographic composition of New Brunswick's two language groups.

In addition to reading less frequently at home, New Brunswick francophones were also less likely to do so at work. Their composite index of reading at work (38.2) is in fact much lower than that of their anglophone counterparts (43.2), Canadians as a whole (45.8) and the other francophone groups, except the one in Quebec. Once again, these results can largely be attributed to the different characteristics of New Brunswick's two language groups; the differences in reading frequency tend to disappear when we take into account factors such as employment sector and education level. Because francophone workers were less educated and held positions that were less complex in the context of a knowledge-based economy, they engaged in reading less often at work.[23]

21. A note accompanying Table 1.5 describes this composite index of reading at home.
22. Reading-related cultural capital refers to the various reading-related cultural resources available to an individual. It is evident that simply using the number of books at home at age 16 to measure such a complex concept is reductionist. However, this is the approach proposed by the OECD and presented in the conceptual framework for PIAAC (OECD, 2011).
23. We will look at this element in greater detail in Chapter 3.

Participation in training activities is also very important to maintaining skills throughout life. Learning in a school setting is only one of the many forms of training that individuals can pursue. Continuing education does more than simply give individuals an opportunity to apply and update their skills and to develop new ones. This process of continuous learning is vital in a context of skills erosion associated with population aging and the need to have an increasingly skilled labour force.

PIAAC data reveal that just over 40% of New Brunswick francophones participated in training activities during the year that preceded PIAAC. Although the PIAAC sample is not sufficient to conclude that the difference of close to five percentage points between anglophones and francophones is statistically significant, New Brunswick francophones were less likely to participate in training activities than their counterparts in Ontario and Manitoba and Canadians as a whole. The differences between New Brunswick francophones and these groups are mainly the result of job training. Participation in this form of training was much more popular among francophones in Ontario (43.1%) and Manitoba (47.7%) than those in New Brunswick (28.0%).

Although the PIAAC sample is not sufficient to confirm this, the results of studies on training (Bérard-Chagnon, 2015; Knighton et al., 2009) suggest that, because of their lower education levels, francophones in the north might be less likely to have participated in training activities than those in other parts of the province. These results imply that, despite the growing importance of continuing education in government social and economic policy, a significant portion of New Brunswick's francophone population is less likely to have access to training.

Reading at home and at work as well as participation in training activities are key elements of the "virtuous circle of literacy" and at the same time are positively associated with a high level of literacy proficiency. Table 1.6 presents the average literacy test score of New Brunswick francophones in relation to certain reading-related activities. The data presented there confirm the association between engagement in reading-related activities, both at home and at work, and literacy skills. First, reading regularly in everyday life is tied to better performance on the PIAAC literacy test. New Brunswick francophones whose index of reading at home was 70 or over earned an average score of just over 280. Conversely, those whose index of reading at home was below 40 performed much less well; their average score was less than 240, and 78.0% of them did not reach Level 3 of the literacy scale. The effect of reading in everyday life on the literacy proficiency level of New Brunswick's francophone population remains statistically significant even when other factors associated with literacy performance are taken into account, thereby attesting to the strong importance of reading habits in the development and maintenance of skills throughout life.

Table 1.6
Average literacy scores of New Brunswick francophones and proportion in the lower range of the proficiency scale,[1] by literacy practice, 2012

Activities	Average literacy score	Proportion of francophones in lower range of scale
Total	**259**	**61.2[o]**
Composite index of reading at home[†]		
< 40	237*	78.0*
40 to < 50	268	57.2
50 to < 60	276	47.9
60 to < 70	280	43.3
≥ 70 (ref.)	281	41.6
Composite index of reading at work[†]		
< 40	245*	74.8*[o]
40 to < 50	270	54.2
50 to < 60	287	35.3
60 to < 70	293	33.0
≥ 70 (ref.)	282	40.1
Participation in training activities over the past year		
No training activity	244*	73.8*[o]
One training activity	270	55.2
More than one training activity (ref.)	283	39.1

* significantly different from reference category at a 95% confidence level ($p < 0.05$)

† in the Programme for the International Assessment of Adult Competencies (PIAAC), respondents were asked to report the frequency with which they engaged in reading eight types of materials (letters and emails, newspapers, reference materials, etc.) at home and at work. A composite index from 0 to 100 was constructed based on the responses to these questions to measure PIAAC respondents' general reading habits. The closer the index is to 100, the more frequent the respondent's reading

[o] indicates a statistically significant difference in relation to the value for New Brunswick anglophones at a 95% confidence level

(ref.) reference category

1. Below Level 3.

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Regularly engaging in reading at work is also positively associated with higher literacy skills. The average literacy score of francophones who did not do so was more than 35 points lower than that of those who read frequently at their jobs. It is worth noting that the scores of close to three-quarters of francophone workers who did not do much reading in their jobs were in the lower range of the literacy scale, compared with just under 60% of their anglophone counterparts.

Lastly, participation in training activities is also associated with a higher level of literacy proficiency. The average literacy score of francophones who took part in a number of training activities over the previous year was nearly 40 points higher than for those who did not participate in any training activities. Regression analysis confirmed the connection between participation in training activities and literacy performance in that, even when the effects of francophones' characteristics and reading habits are taken into account, participation in training activities remains associated with an increase of close to 13 points in the literacy score.

1.3 Conclusion

As with previous surveys, the PIAAC results reveal that the outcomes of New Brunswick francophones are lower than those of the province's anglophones, as well as those of the other francophone groups studied, from the standpoint of not only literacy but also numeracy and problem-solving in a technology-rich environment. The lower scores for New Brunswick francophones can be explained by both a lower education level and different reading-related habits. Education, which facilitates the initial development of skills, and reading habits, which help maintain them throughout life, are essential components of the "virtuous circle of literacy".

However, analysis of factors such as reading-related cultural capital and the practice of reading at home and at work reveals that the differences between francophones and anglophones with regard to literacy disappear if the influence of those factors is taken into account. In other words, if francophones had characteristics similar to those of anglophones in relation to those factors, no difference in their literacy scores would be observed. This raises the following question: why do New Brunswick francophones have different characteristics in terms of education, reading-related cultural capital and the practice of reading? In the next chapter we will see that the demographic dynamics and composition of the francophone population play an important role in these differences.

2. Demographic factors: Population aging, migration and immigration

For the past several decades, New Brunswick's population has been growing at a rate below that of the entire country. In its *New Brunswick Population Growth Strategy: 2014-2017*, the Government of New Brunswick acknowledges that the province's demographic reality is a major impediment to its economic and social development. The strategy is based on four areas of focus that centre on the major demographic issues the province is facing: attracting New Brunswick expatriate; retaining youth and international student graduates; increasing immigration; and fostering diverse, inclusive communities (Government of New Brunswick, 2014a).

The demographic reality of the province's francophone communities is sometimes quite different from that of the majority language communities. In the brief it submitted to the government, the Société de l'Acadie du Nouveau-Brunswick (2013) echoes the specific concerns of francophone communities, in particular the high level of population aging in rural areas and the low level of francophone immigration. A substantial percentage of the francophone population resides in rural communities in the north, far from the province's urban hubs. While francophones account for close to one-third of New Brunswick's population, they represent less than 20% of the combined population of the province's three largest cities: Moncton (where they make up approximately one-third of the population), Saint John and Fredericton.

Immigration is increasingly being perceived as an important lever for the development of minority francophone communities. In its *Roadmap for Canada's Official Languages, 2013-2018* (Canadian Heritage, 2013), the Government of Canada not only highlights the importance of immigration for such communities by making it one of the three pillars of its strategy, but also affirms its intention to intensify its efforts to draw francophone immigrants to its minority communities. The Government of New Brunswick has followed the federal government's lead in developing the *New Brunswick Francophone Immigration Action Plan*. The plan is intended to "help the province succeed in meeting its goal of attracting 33 per cent of francophone or francophile newcomers to New Brunswick by the end of 2020" (Government of New Brunswick, 2014b). Where applicable, these newcomers will certainly be able to contribute to the vitality of the province's francophone population. However, their concentration in the Moncton area could present a number of challenges for that area, with regard to their integration into the local francophone community and the labour market in particular, but also in other parts of the province, which continue to face a decline in their populations and major difficulties in attracting francophone immigrants.

The purpose of this chapter is to establish connections between the demographic characteristics of New Brunswick's francophone population and the literacy proficiency levels observed in the previous chapter. The latter reported the relatively low results of New Brunswick francophones on the Programme for the International Assessment of Adult Competencies (PIAAC) proficiency tests in comparison with those of the province's anglophones, francophones in other provinces and Canadians as a whole. These differences disappear when we isolate the influence of certain factors pertaining to education and reading as well as certain demographic and socioeconomic factors on literacy levels. Therefore, the reason that differences in literacy proficiency are observed is that New Brunswick's francophone population differs from the other populations in the study in a number of respects, from a demographic and a socioeconomic perspective in particular.

The purpose of this chapter and the following one is to document these differences and to understand what kind of impact they have on literacy skills. Demographic factors will be the first ones looked at in this chapter, which is divided into two sections. The first section deals with the situation of New Brunswick francophones in terms of population aging, while the second addresses the effects of interprovincial, intraprovincial and international migration.

2.1 Demographic trends and population aging

While Canada's population increased by more than 50% between 1974 and 2014, that of New Brunswick rose by only 13.4% during this period.[24] This lower growth rate served to exacerbate the population aging in this province, with 18.3% of New Brunswick's population aged 65 years and over as of July 1, 2014, compared with 15.7% of the population of Canada as a whole.

24. Statistics Canada. *Table 051-0001 - Estimates of population, by age group and sex for July 1, Canada, provinces, and territories, annual*, CANSIM (database) (accessed: July 13, 2015).

Trends with regard to the size of the language groups in New Brunswick are marked by profound differences arising from diverging demographic and linguistic dynamics. Table 2.1 shows these trends as well as the rate of population growth and the population distribution for New Brunswick's two main language groups.

Table 2.1
Population counts, population growth and population distribution, by first official language spoken[1] in New Brunswick, 1971 to 2011

Year	English	French	Total[†]
	population count		
1971	418,825	215,130	**634,555**
1981	457,525	231,430	**689,370**
1991	473,415	242,630	**716,500**
1996	488,180	241,045	**729,630**
2001	480,920	238,445	**719,710**
2006	483,845	235,130	**719,655**
2011	503,325	235,690	**739,895**
	population growth (in %)		
1971 to 1981	9.2	7.6	**8.6**
1981 to 1991	3.5	4.8	**3.9**
1991 to 1996	3.1	-0.7	**1.8**
1996 to 2001	-1.5	-1.1	**-1.4**
2001 to 2006	0.6	-1.4	**0.0**
2006 to 2011	4.0	0.2	**2.8**
	distribution within New Brunswick's population (in %)		
1971	66.0	33.9	**100.0**
1981	66.4	33.6	**100.0**
1991	66.1	33.9	**100.0**
1996	66.9	33.0	**100.0**
2001	66.8	33.1	**100.0**
2006	67.2	32.7	**100.0**
2011	68.0	31.9	**100.0**

† the total population also includes people whose first official language spoken was neither English nor French. The size of this group was less than 1,000 people in 2011

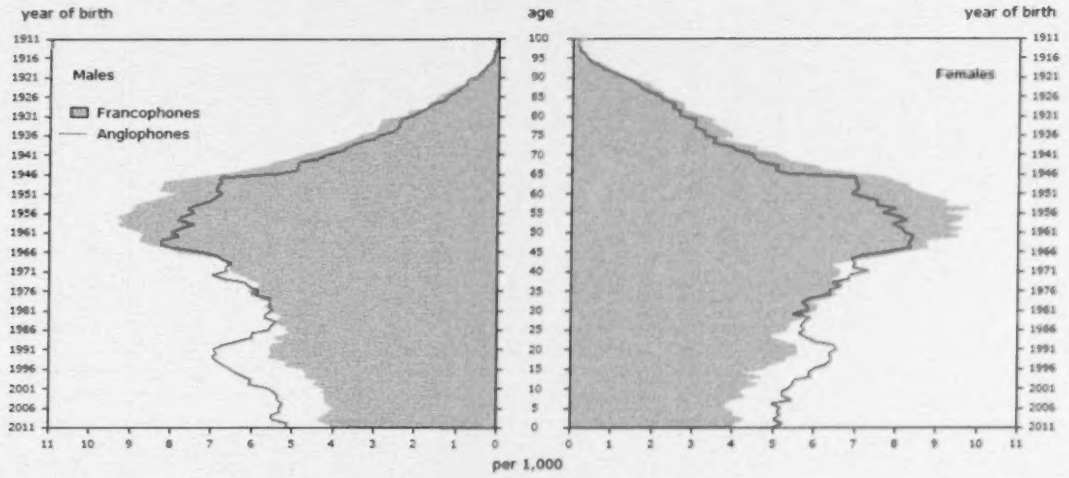
1. After equal distribution of the "English and French" category.

Sources: Lepage, Jean-François, Camille Bouchard-Coulombe and Brigitte Chavez. 2011. *Portrait of Official-Language Minorities in Canada: Francophones in New Brunswick.* Statistics Canada Catalogue no. 89-642-X, no. 5; and 1971, 1981, 1991, 1996, 2001, 2006 and 2011 censuses.

The 2011 Census enumerated 235,700 people whose first official language spoken was French, up 0.2% from 2006. Although this increase marks the end of a number of years of decline, it is considerably lower than the growth in the anglophone population (4.0%). Accordingly, the francophone population is growing much less rapidly than New Brunswick's anglophone population, and hence the demographic weight of the francophone population has tended to decrease over the past 40 years. In 2011, the number of people whose first official language spoken was French made up 31.9% of the province's population, a decrease of two percentage points from 1971. New Brunswick's francophone population represented just under a quarter (23.4%) of the francophone population outside Quebec in 2011.

In addition to having contributed to the disparities in the change in the size of these populations over time, the differing demographic dynamics of the two language groups have also given rise to substantial variances in the age structure of the population. The following age pyramid illustrates these variances (Chart 2.1). In particular, it highlights the much greater aging of the francophone population. In 2011, 18.0% of francophones were aged 65 and older, compared with 15.7% of anglophones and 14.8% of the Canadian population as a whole. Given that 26.3% of francophones were in the 50-to-64 age group, we can expect a strong increase in the proportion of francophones aged 65 and older in the coming years.

Chart 2.1
Age pyramid for New Brunswick anglophones and francophones, 2011



Note: The francophone population is defined on the basis of the criterion of first official language spoken with equal distribution of the "English and French" category.
Source: Statistics Canada, 2011 Census.

The more rapid aging of the francophone population is mainly due to two factors: decreasing fertility and incomplete transmission of French. Regarding the first factor, the fertility of francophone women was historically much higher than that of anglophone women. Between 1956 and 1961, for example, the fertility of francophone women was 5.9 children per woman, while that of anglophones was approximately 4.3 children per woman (Lepage et al., 2011). In the decades that followed, the fertility of francophones decreased considerably to the point that, since the 1980s, their fertility has been lower than that of anglophones (Lepage et al. 2011). The fertility of francophone women was 1.5 children per woman between 2006 and 2011, compared with 1.7 children per woman among anglophones.

Regarding the second factor, French is not always passed on to children as a mother tongue. While French is almost always passed on when both parents are francophones, the rate of transmission decreases considerably if the mother tongue of one of the parents is not French. In 2011, French was passed on as the mother tongue to 32% of children whose parents had French and English as their mother tongues respectively.[25] Exogamous francophone couples are becoming increasingly common in New Brunswick. In 1971, just over 15% of children with at least one francophone parent were living in a family of an exogamous couple, compared with 33% in 2011. These two elements therefore exert a degree of influence on the transmission of French from parents to children and, at the same time, on the rate of aging of the francophone population.

The impacts of population aging on Canada's economic and social development are many. The increase in retirements that will likely occur in the coming years will present a number of challenges, not only with regard to labour force renewal but also financial security for retired individuals—and at the same time for pension funds—and for management of the health care system. In light of recent demographic dynamics, New Brunswick's francophone population will likely continue to age more quickly than the anglophone population and the population of Canada as a whole.

2.1.1 Aging and literacy

Age is an important correlate of literacy skills. Skill levels tend to peak in a person's thirties and gradually decrease after that (Statistics Canada, 2013). In addition to the biological effects of aging, which cannot be disregarded, there are a number of other factors that can account for this decrease. As individuals age, more years pass from the time of their initial education and they become more and more dependent on using their skills in order to

25. Although still incomplete, the transmission of French in cases of French-English exogamy has been on the rise over the past 40 years. In 1971, for approximately 20% of children living in a situation of French-English exogamy, French was passed on as the mother tongue (Lepage et al., 2011).

preserve them over time. That is why engaging in reading-related activities on a regular basis becomes more significant as people age.

PIAAC data (Table 2.2) reveal that the skill level of New Brunswick francophones peaks at just under 280 for individuals in the 25-to-34 age group. In the other age groups, these skills gradually decline to a level of just above 240 for people in the 55-to-65 age group, a statistically significant difference of approximately 40 points. Moreover, nearly three out of four francophones aged 55 to 65 scored in the lower range of the PIAAC scale. Francophones in this age group also achieved an average score that was lower than that of their anglophone counterparts by more than 25 points.

While these differences attest to considerably lower education levels for older generations of francophones as a result of the social, political and historical context in which they grew up, age nonetheless remains correlated with skill level even when education level is taken into account. It is worth noting that, despite the increase in education levels, close to two-thirds of francophones aged 16 to 24 are in the lower range of the literacy scale, compared with 57.8% for anglophones in the same age group. The score for these francophones is more than 15 points lower than that of Canadians as a whole in this age group, thus suggesting that these younger generations could continue to experience major difficulties with regard to literacy during their lives.

Table 2.2
Average literacy scores of New Brunswick francophones and anglophones and proportion in the lower range of the proficiency scale[1] by age group, 2012

	Francophones		Anglophones	
Age group	Average literacy score	Proportion in lower range of scale	Average literacy score	Proportion in lower range of scale
Total	**259°**	**61.2°**	**273**	**49.8**
16 to 24 years	259	65.6	263	57.8
25 to 34 years (ref.)	278	43.1	285	38.1
35 to 44 years	274	45.5	284	41.4
45 to 54 years	252*	67.8*	268	52.4
55 to 64 years	242*	77.6*°	268	55.7

* significantly different from reference category at a 95% confidence level ($p < 0.05$)
° statistically significant difference in relation to the value for New Brunswick anglophones at a 95% confidence level
(ref.) reference category
1. Below Level 3.
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Population aging is therefore more significant for New Brunswick francophones than for the province's anglophone population and the Canadian population as a whole. This more pronounced aging is reflected in the assessment of literacy skills in that there is in fact a connection between age and literacy proficiency level. In addition to fertility and the transmission of French to children, migration and immigration are two factors that can either mitigate or exacerbate population aging and that also have a bearing on literacy skills. The following sections detail how these factors affect New Brunswick's francophone population and the average literacy level of its members.

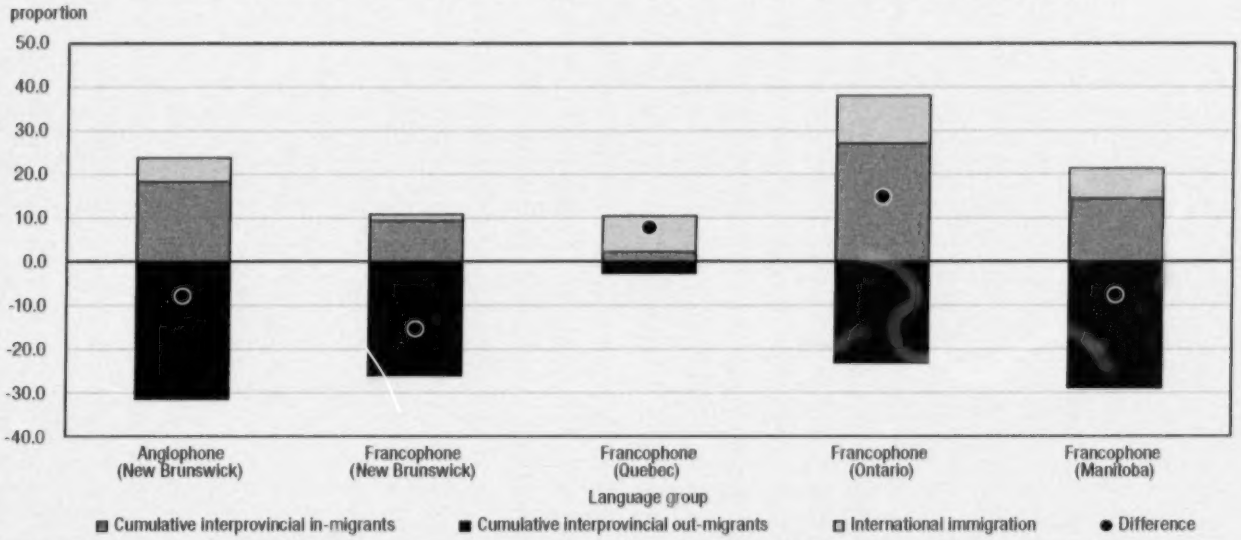
2.2 Interprovincial migration

Along with population aging, migration dynamics present a number of challenges for the development of New Brunswick's francophone communities. A number of studies have demonstrated the difficulties that some of New Brunswick's francophone communities have had in attracting and retaining immigrants and interprovincial migrants over the past several decades (Lepage et al., 2011; Pépin-Filion et al., 2015). The disparity between New Brunswick and the rest of Canada with regard to population growth is partly the result of migration dynamics that have been especially unfavourable to this province. Between 1973-1974 and 2013-2014, New Brunswick lost more than 32,000 people to the rest of Canada. This level of loss through migration may well have an impact on current social and economic issues in the province, especially since interprovincial migrants tend to be highly educated young adults.

New Brunswick's francophone community has nonetheless expanded over time thanks to francophones from the rest of the country and the world who have come to the province to live. This contribution will be even more significant in the future given that, with fertility having been under the replacement level for a number of years, the growth of the francophone population will depend primarily on migration.[26]

Migration is a very complex phenomenon arising from demographic, social and economic dynamics that are inextricably linked. Chart 2.2 illustrates the effect of migration dynamics on the size of the different language groups studied in 2011. These data clearly show the negative migration patterns of New Brunswick francophones associated with losses in net interprovincial migration that are only partially offset by a relatively low level of international immigration.

Chart 2.2
Effects of interprovincial and international migration compared with 2011 counts, by province and language group



Notes: Because the numbers of cumulative interprovincial in-migrants and out-migrants were produced by comparing province of birth and province of residence in 2011, only people born in Canada were counted in these two categories. Section 2.2.1 provides further details regarding this concept. International immigration encompasses immigrants and non-permanent residents. To ensure the numbers are on a comparable scale, the proportions here were calculated by dividing the various counts by the 2011 population counts. It is important not to see these data as representing net migration for these groups, given that emigration cannot be measured by language group.
Source: Statistics Canada, 2011 National Household Survey.

For every 100 francophones living in New Brunswick in 2011, the province lost 17 people to other provinces. The only factor offsetting these net losses was the arrival of two francophones through immigration or temporary residence, for a total effect of -15%. In comparison, while New Brunswick anglophones also experienced significant losses to the rest of the country through migration, those losses were mitigated more by an increase in numbers as a result of international migration. The migration dynamics of New Brunswick's francophone population were also more negative than those of the other francophone groups presented in our study, which all benefited from a much larger contribution from international migration.

Three phenomena characterize the interprovincial migration dynamics of New Brunswick francophones: the magnitude of the losses involving young adults, the significance of return migration, and the differences in net migration by province. Let us begin by looking at the first two.[27]

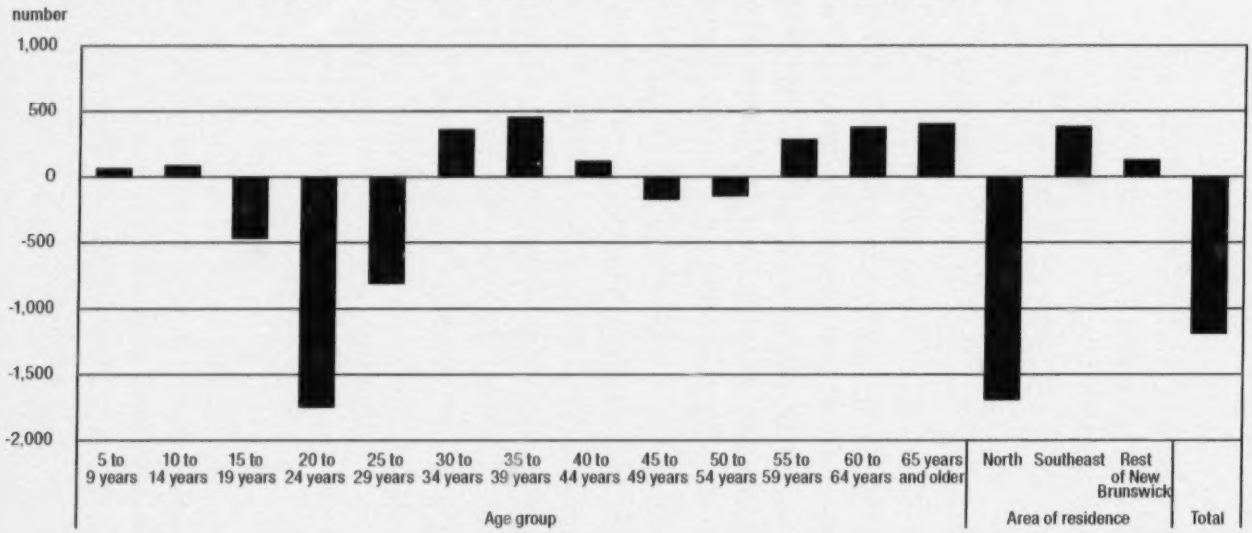
Between 1981 and 2011, New Brunswick's francophone population accumulated net losses of more than 5,000 people. More recently, between 2001 and 2011, New Brunswick's francophone communities lost more than 1,000 francophones to the rest of the country (Chart 2.3). During the period from 2006 to 2011 the situation turned around to some extent, as francophones posted a positive balance of approximately 850 people. This was the first census period during which francophones had made net gains in their migratory interactions with the

26. This situation is not unique to New Brunswick francophones; since 2001, the main driver of population growth in Canada has not been natural increase but increase through migration (Statistics Canada, 2012).
27. Differences in net migration by area will be discussed in section 2.3.

rest of the country since the 1981-1986 period. The situation of francophones in this regard differs from that of anglophones in that the latter accumulated losses in interprovincial migration of close to 1,000 people during the 2006-2011 period. However, Statistics Canada's population estimates indicate that New Brunswick's losses in net interprovincial migration have become more pronounced since 2011, and it would thus be interesting to see the extent to which this increase has affected the net migration of francophones.

The net migration of New Brunswick's francophone population is largely tied to the migratory behaviours of young adults. Between 2001 and 2011, when New Brunswick lost approximately 1,200 francophones to the rest of the country, the total number of losses through migration involving francophones aged 20 to 29 was over 2,500. Given that a third of the interprovincial migrants in this age group held at least a bachelor's degree, the negative balance of New Brunswick's francophone population between 2001 and 2011 involved net losses of more than 800 highly educated young francophones.[28] It is worth noting that New Brunswick anglophones also experienced losses in interprovincial migration between 2001 and 2011. Most of these losses were to Alberta. On the francophone side, Quebec was the main beneficiary of New Brunswick's losses.

Chart 2.3
Net interprovincial migration of New Brunswick francophones, by age group and region, from 2001 to 2011[1]



1. Total data from two periods, 2001 to 2006 and 2006 to 2011. Only people present in Canada at the beginning and end of each period are reflected in this chart. Accordingly, people aged 0 to 4, who were not born at the beginning of the period, do not appear. It must nonetheless be noted that the period 2006 to 2011 showed net migration that was slightly positive for New Brunswick francophones.

Sources: Statistics Canada, 2006 Census and 2011 National Household Survey.

These data also reveal a dynamic with two components. While some of those leaving for the rest of the country are students who will be pursuing university studies outside the province, others are highly educated young workers who have found a job elsewhere in Canada. In 2011, close to two-thirds of francophones aged 30 to 39 who were born in New Brunswick and who lived elsewhere in the country had earned their highest postsecondary degree or diploma outside New Brunswick. Calhoun (2013) also showed that approximately 40% of New Brunswick university graduates, all language groups combined, left the province within two years of graduating. The corresponding proportion was 23.6% for graduates originally from New Brunswick and close to 80% for international migrants. This attests to the scope of the challenge in terms of retaining students and recent university graduates in New Brunswick.

A corollary to the substantial losses through migration that have been observed among francophones aged 20 to 29 is that, leaving aside this age group, New Brunswick's francophone population presented positive net interprovincial migration of close to 1,400 people between 2001 and 2011. These gains are largely the result of return migration. During this period, just over half of all francophones who migrated to the province from the rest

28. Another third of these migrants held a postsecondary diploma. The net interprovincial migration of New Brunswick francophones for those who held a postsecondary degree was -950 between 2001 and 2011, a level similar to that of highly educated New Brunswick francophones.

of the country were born in New Brunswick. That proportion was at its highest, at over 60%, for older in-migrants, i.e., those aged 55 to 74.

This trend, which is not recent, serves to mitigate losses through migration for provinces that have had negative net migration (Hou and Beaujot, 1995). Francophone returnees are characterized in particular by a slightly older age structure and lower levels of education. Between 2006 and 2011, when a third of interprovincial in-migrants to New Brunswick who were born in other parts of the country held at least a bachelor's degree, this was the case for less than 20% of those who returned to their province of birth. The north tends to stand out from the other parts of the province because of the scale of this phenomenon, with more than 6 in 10 interprovincial in-migrants being returnees.

These differences mean that returnees do not make the same kind of contribution to the social and economic development of New Brunswick's francophone communities. Although a number of returnees come back to their home province to retire, those who are working bring with them a wealth of work experience acquired over time or skills learned in school that can contribute to the development and vitality of New Brunswick's francophone communities.

It is worth noting that return migration is much more frequent among New Brunswick francophones than among the province's anglophones, who account for one-third of interprovincial in-migrants.[29] In addition to helping mitigate the loss through migration of the francophone population, the level of return migration could indicate that francophones have a stronger attachment to the province of their birth but also that the province is having major difficulties in attracting francophones born in other parts of the country.

Another consequence of the migration dynamics of New Brunswick's francophone population is that the percentage of that population accounted for by people born outside the province is relatively low. In fact, in 2011, close to 9 in 10 francophones were born in New Brunswick, compared with just under 8 in 10 anglophones. New Brunswick francophones also differ from their counterparts in other provinces and territories outside Quebec. For example, 4 in 10 Franco-Ontarians were born outside of Ontario, meaning that close to four times as many francophones were born outside the province than in New Brunswick. In British Columbia and the territories, unlike in New Brunswick, close to 9 in 10 francophones were born outside the province or territory.

From looking at the place of birth, it can be seen that 6.5% of francophones living in New Brunswick in 2011 were born in Quebec, 2.8% were born elsewhere in Canada and 1.7% were born in other countries. This distribution by place of birth is quite different from that of anglophones: 18.3% of the total number of anglophones came from other parts of Canada, compared with 9.3% for francophones. People born abroad also constituted a much larger percentage of the anglophone population (5.7%).

2.2.1 Long-term effects of interprovincial migration

Over a relatively short length of time such as a census period, interprovincial migrants account for only a small portion of a population. However, over the long term, they may represent a significant number that may not only be associated with socioeconomic gaps among the different parts of the country but that may in fact exacerbate them. Accordingly, over the long term, interprovincial migration may exert considerable influence on a community's development.

It is possible to ascertain the long-term impact of interprovincial migration dynamics on the sociodemographic composition of New Brunswick's francophone communities by comparing the province or territory of residence in 2011 with the province or territory of birth. This indicator, to be referred to here as "cumulative interprovincial migration", therefore represents all migration by francophones from the time of their birth up to 2011.[30] Table 2.3 compares the scale of cumulative migration by francophones on the basis of a number of different sociodemographic characteristics.[31]

29. The percentage of interprovincial in-migration accounted for by return migration by New Brunswick francophones is partly a reflection of the relatively low level of appeal the province holds for francophones born elsewhere in Canada.
30. However, it must be noted that this indicator does not take into account the time of migration or secondary migration that may have taken place between an individual's birth and the time when the information is collected and must be limited to francophones born in Canada. The topic of immigration will be dealt with later in this chapter.
31. Appendix 9 presents a similar table for New Brunswick anglophones for comparison purposes.

Table 2.3
Characteristics of New Brunswick francophones, by cumulative migration status, 2011

	Cumulative interprovincial migration						
	In-migrants		Out-migrants		Net cumulative interprovincial migration	Non-migrants (cumulative)	
Characteristics	number	percent	number	percent	number	number	percent
Total	**21,455**	**100.0**	**60,480**	**100.0**	**-39,025**	**205,595**	**100.0**
Province/territory of residence							
Rest of Atlantic	...	...	3,405	5.6	...	...	...
Quebec	...	...	37,275	61.6	...	...	...
Ontario	...	...	13,215	21.8	...	...	...
Manitoba and Saskatchewan	...	...	690	1.1	...	...	...
Alberta	...	...	3,735	6.2	...	...	...
British Columbia	...	...	1,930	3.2	...	...	...
Territories	...	...	230	0.4	...	...	...
Age group							
0 to 14 years	2,145	10.0	2,200	3.6	-50	27,230	13.2
15 to 24 years	1,790	8.3	4,035	6.7	-2,240	22,135	10.8
25 to 34 years	2,715	12.6	8,075	13.3	-5,360	23,905	11.6
35 to 44 years	4,175	19.5	7,655	12.7	-3,480	25,440	12.4
45 to 54 years	4,630	21.6	10,980	18.2	-6,350	35,710	17.4
55 to 64 years	3,075	14.3	12,735	21.1	-9,650	36,625	17.8
65 to 74 years	1,910	8.9	9,005	14.9	-7,090	20,735	10.1
75 years and older	1,015	4.7	5,800	9.6	-4,780	13,805	6.7
Highest level of educational attainment[1]							
No certificate, diploma or degree	3,395	19.4	13,830	25.5	-10,430	51,395	32.9
High school diploma or equivalent	3,360	19.2	10,965	20.2	-7,600	30,455	19.5
Postsecondary certificate or diploma below bachelor level	6,745	38.5	19,220	35.4	-12,470	52,860	33.8
University certificate or diploma at or above bachelor level	4,015	22.9	10,225	18.8	-6,200	21,510	13.8
Region of residence[2]							
North	10,075	46.9	...	...	...	111,950	54.5
Southeast	6,965	32.5	...	...	...	22,630	34.5
Rest of New Brunswick	4,415	20.6	...	...	...	71,010	11.0

... not applicable

[1] the educational attainment figures presented are for persons aged 25 and over only

[2] figures cannot be obtained at the regional level for cumulative out-migrants given that subprovincial geographies are not available for place of birth in the NHS

Note: The cumulative interprovincial in-migrants are those who live in New Brunswick but were born elsewhere in Canada. The cumulative interprovincial out-migrants are those who were born in New Brunswick but who live elsewhere in Canada. Only people born in Canada are counted in these two categories.

Source: Statistics Canada, 2011 National Household Survey.

The data in this table not only speak to the scope of the losses in net interprovincial migration for the francophone population but also the differences, some of which are substantial, between the characteristics of in-migrants and out-migrants.

Just over 60,000 francophones born in New Brunswick were living elsewhere in the country in 2011, while close to 21,000 francophones born elsewhere in Canada resided in New Brunswick, representing a negative balance of approximately 39,000 people. These losses have a significant impact, accounting for approximately 17% of the 235,000 francophones living in New Brunswick in 2011. This level of cumulative loss is higher than that of the province's anglophones (13%), one of the main reasons being the anglophone community's greater ability to attract migrants born in other parts of the country. Interprovincial in-migrants (cumulative) in fact represent 18.3% of New Brunswick's anglophone population in 2011, compared with just under 10% for francophones (Chart 2.2).

Because the two groups of migrants (in-migrants and out-migrants) are much more educated than New Brunswick's francophone population as a whole, these data also attest to a migratory trend that exerts downward pressure on the education levels of New Brunswick's francophone population. Over time, New Brunswick has posted net losses of more than 6,000 francophones who held at least a bachelor's degree and more than 12,000 francophones whose highest diploma earned was a postsecondary diploma lower than a bachelor's degree. Had New Brunswick not suffered such losses over the years, the number of francophones who hold at least a bachelor's degree would be 23.4% larger, while the number of those whose highest diploma was a postsecondary diploma lower than a bachelor's degree would be 20.6% higher.

The effect of losses through cumulative migration is somewhat more pronounced for young adults. Without these losses through migration, the number of francophones aged 25 to 34 who hold at least a bachelor's degree would be 24.7% higher, thereby raising the proportion of francophones in the 25-to-34 age group with this level of education by one percentage point. We note that close to two-thirds of cumulative francophone out-migrants earned their highest degree at a postsecondary institution outside New Brunswick. These results suggest that large numbers of francophones might be leaving New Brunswick to pursue postsecondary studies elsewhere in Canada, in Quebec in particular. As we will see later, such a level of loss through migration could have an impact on the skill levels of the francophone population.

The geographic distribution of cumulative in-migrants differs from that of New Brunswick's francophone population as a whole. Although more than half of non-migrant francophones live in the north, 46.9% of cumulative interprovincial in-migrants resided there in 2011 (Table 2.3). While these results show that francophone migrants are drawn to the province's francophone communities, they also suggest that the north is less attractive to francophones from the rest of the country. Moreover, in-migrants living in the north tend to be slightly older and less educated than those in other parts of the province.

2.3 Regional disparities and intraprovincial migration

Rural communities are particularly affected when significant numbers of young adults leave for urban centres in the south, Moncton in particular. A number of these communities are experiencing not only greater population aging but also stagnation or even a decline in the size of their populations. Conversely, while more urban francophone communities are less affected by population decline, they must contend with the cultural and linguistic issues associated with life in a community in which the majority of people are anglophone.

In light of the historical context of New Brunswick's past and the new demographic realities, the geographic distribution[32] of the francophone population is very different from that of the anglophone population. While the north is home to more than half of the province's francophone population, fewer than 1 in 10 anglophones resides there (Table 2.4). Conversely, three in four anglophones live in areas other than the north or the southeast, whereas this is the case for scarcely 10% of francophones. The following table highlights these regional differences.

Table 2.4
Geographic distribution of population, by first official language spoken, New Brunswick, 2011

	English[1]		French[1]		Total[1]	
Region	number	percent	number	percent	number	percent
North	35,915	7.1	124,460	52.8	**160,420**	**21.7**
Southeast	89,885	17.9	81,485	34.6	**171,570**	**23.2**
Rest of New Brunswick	377,540	75.0	29,750	12.6	**407,900**	**55.1**
Total	**503,335**	**100.0**	**235,700**	**100.0**	**739,890**	**100.0**

[1] the total population also includes people whose first official language spoken was neither English nor French

1. The "English and French" category was distributed equally between the two main categories.

Source: Statistics Canada, 2011 Census.

One consequence of the differences in the geographic distribution of the two language groups is that New Brunswick francophones live in communities that are heterogeneous with regard to the language composition of the population. In fact, while nearly 80% of the population in the north was francophone in 2011, the corresponding proportion was slightly below 50% in the southeast. Moreover, less than 10% of the population from the "rest of New Brunswick" had French as their first official language spoken.

New Brunswick's francophone communities are also characterized by strong differences in their demographic situations. This disparity is the result of differing demographic dynamics, with regard to migration in particular, that can be linked to the economic and social vitality of each region in a variety of ways.[33] Table 2.5 presents a few demographic indicators for each of the province's three regions.

32. The geographic regions used throughout this report are delineated in Appendix 2, which also presents the number of francophones by census division.
33. We will look at these connections in the next chapter.

Table 2.5
Demographic indicators of New Brunswick's francophone population, by region of residence, 2011

Region of residence	Total population in 2011	Population growth between 2001 and 2011		
		Total population	Population aged 50 to 64	Population aged 65 and over
	number		percent	
Total	**235,700**	**-1.2**	**26.3**	**18.0**
North	124,460	-6.8	27.6	18.3
Southeast	81,490	9.1	26.4	17.8
Rest of New Brunswick	29,755	-1.5	24.2	17.3

Sources: Statistics Canada, 2001 and 2011 censuses.

Between 2001 and 2011, demographic trends among the francophone population varied greatly from one region to the next. While francophone communities in the north saw their numbers decline by 6.8%, those in the southeast grew by more than 9.0%.

Moreover, the population in the north of the province was slightly older than that in the southeast and the rest of the province: the proportion of people aged 65 and older was slightly higher in the north (18.3%) than in the other regions (17.8% in the southeast and 17.3% in the rest of the province). People aged 50 to 64 were also proportionally more numerous in the north (27.6%, compared with 26.4% in the southeast and 24.2% in the rest of the province). This suggests that population aging may be more rapid in the north than in the other regions in the coming years, thereby exacerbating regional differences with regard to age structure.

Owing to regional differences in the sociodemographic composition of the population, francophones living in the north of the province performed much less well on the PIAAC literacy test than those who resided in the southeast (252 versus 265) (Table 2.6). We have already discussed the major differences with regard to education and age structure between the francophone population in the north, which is older and much less educated, and that of southeast. However, the differences in sociodemographic characteristics and reading-related behaviours do not explain all of the differences observed between the francophone groups in the north and the southeast. Even when these effects are taken into account, the average score of francophones in the north is eight points lower than for those in the southeast.

Table 2.6
Average literacy scores of New Brunswick francophones and proportion in the lower range of the proficiency scale,[1] by region of residence, 2012

Region	Average literacy score	Proportion of francophones in lower range of scale
Total	**259***	**61.2***
North	252*	67.8
Southeast (ref.)	265	56.4
Rest of New Brunswick	267	52.9

* significantly different from reference category at a 95% confidence level ($p < 0.05$)
* statistically significant difference in relation to the value for New Brunswick anglophones at a 95% confidence level
(ref.) reference category
1. Below Level 3.
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

This finding suggests that other mechanisms might come into play in explaining these differences. Francophones in the northern part of New Brunswick often live in rural communities and therefore have more limited access to activities and infrastructures that could facilitate the adoption of practices conducive to the maintenance of skills. Corbeil (2006) showed that where people live can partly account for the differences observed between New Brunswick francophones and their counterparts in other provinces with regard to library use.

2.3.1 Intraprovincial migration

There are some major regional disparities between the various francophone communities in New Brunswick with respect to intraprovincial migration. Between 2001 and 2011, while the southeast region realized a net gain of over 3,100 francophones, the north lost a similar number of francophones, mostly to the southeast. During that same period, the rest of New Brunswick posted a balance of -150 owing to losses to the southeast, the latter being almost entirely offset by gains at the expense of the north. Table 2.7 presents intraprovincial migration balances for the three regions of the province for a number of different sociodemographic characteristics.

Table 2.7
Net intraprovincial migration for New Brunswick francophones by region of residence, by age group and education attainment, 2001 to 2011

Characteristics	North	Southeast	Rest of New Brunswick
		number	
Total	**-2,980**	**3,130**	**-150**
Age group			
0 to 14 years	-90	140	-40
15 to 24 years	-1,830	1,815	25
25 to 34 years	-520	255	270
35 to 44 years	-100	150	-30
45 to 54 years	-360	480	-110
55 to 64 years	0	120	-120
65 to 74 years	-10	95	-70
75 years and older	-20	75	-40
Highest level of educational attainment[1]			
No certificate, diploma or degree	20	220	-240
High school diploma or equivalent	-250	75	175
Postsecondary certificate or diploma below bachelor level	-720	740	-10
University certificate or diploma at or above bachelor level	-80	140	-50
Total – Interprovincial migration and intraprovincial migration	**-4,670**	**3,510**	**-20**

[1] the educational attainment figures presented are for persons aged 25 and over only
Sources: Statistics Canada, 2006 Census and 2011 National Household Survey.

As with interprovincial migrants, francophone intraprovincial migrants are also proportionally more likely to have graduated from university than non-migrants (Forgues et al., 2009). Accordingly, intraprovincial migration can also influence the skill levels of the population and serve to exacerbate regional disparities with regard to economic and social development.

A review of intraprovincial migration for the 2001-2011 period by age group reveals that the significant disparities noted earlier stem mainly from the migration of young adults. The balances for migrants aged 15 to 24 account for almost all of the losses through intraprovincial migration in the north and the gains in the southeast. If this age group is excluded, the intraprovincial migration balance in the north falls from -2,980 to -1,150, while that in the southeast drops from 3,130 to 1,315.

In addition to looking for work, the pursuit of postsecondary studies is likely one of the primary motivations of migrants in this age group. More than half of in-migrants to the southeast aged 15 to 24 had attended a postsecondary institution, in most cases a university, during the nine-month period leading up to the NHS. Given that Université de Moncton is the province's only francophone university, and although there are campuses elsewhere in the province, it is not surprising that the southeast region is the main beneficiary of intraprovincial migration for people aged 15 to 24. However, the data for the age groups that follow seem to indicate that the north is not successful in "recovering" the majority of these migrants. Accordingly, the southeast is likely to benefit more from this young and well-educated francophone labour force.

What are the likely impacts of intraprovincial migration on literacy proficiency levels of the population? Table 2.8 shows the estimated literacy proficiency of francophones by region and their intraprovincial migration status.

Table 2.8
Estimated average literacy scores and net intraprovincial migration between 2006 and 2011 for New Brunswick francophones aged 16 to 65, by intraprovincial migration status and region of residence

Region	In-migrants	Out-migrants	Non-migrants	Net intraprovincial migration
	Literacy score			
North	282	271	248	-1,136
Southeast	272	289	269	890
Rest of New Brunswick	280	272	262	246
Total	**277**	**277**	**256**	**0**

Note: Because the Programme for the International Assessment of Adult Competencies (PIAAC) sample size limits analysis of literacy skills by intraprovincial migration status, estimated scores were calculated by combining PIAAC and NHS information. Scores do not come directly from PIAAC, but are modelled using regression coefficients from PIAAC applied to the population of interest in the National Household Survey.
Sources: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012, and 2011 National Household Survey.

As was seen in the previous section, the literacy proficiency level of intraprovincial migrants seems to be higher than that of non-migrants. Once again, this can mainly be explained by the characteristics of migrants, who are younger and more educated than non-migrants. These two factors are closely associated with literacy skills.

The situation in the north is worthy of attention in that the demographic dynamics that are particularly unfavourable to this region have served to bring down the skill levels of the entire francophone population, while they tend to favour those of the province's other regions, the southeast in particular. It is worth noting that in-migrants in the north posted an estimated literacy score that was higher than that of out-migrants, whereas the situation was the opposite in the southeast. These results appear to bear out the effect of migration for the purpose of pursuing postsecondary studies and the return migration that ensues. A significant percentage of out-migrants from the north very likely go to Moncton to attend university, thus enabling them to develop their literacy skills. Some graduates then return to the north with the new skills they have acquired through their studies. However, because this return migration involves only a portion of the migrants who moved to the southeast, intraprovincial migration would nonetheless tend to have a negative impact on the literacy proficiency levels of francophones in the north.

2.3.2 Cumulative effect of migration

The dynamics of intraprovincial migration exist alongside those of interprovincial migration, which differ significantly from region to region for New Brunswick francophones. Between 2001 and 2011, the northern part of the province lost more than 1,500 francophones, while the southeast gained close to 375 francophones through interprovincial migration (Table 2.9). Clearly, the negative balance of New Brunswick's francophone population with regard to interprovincial migration is essentially because of the situation in the north of the province. This illustrates the specific difficulties faced by this region in retaining francophones and attracting francophones from the rest of the country. As we will see later on, this region is facing similar obstacles with regard to international immigration.

Table 2.9
Net interprovincial and intraprovincial migration and international immigration from 2001 to 2011 for the francophone population of New Brunswick, by area of residence in 2011

Region	Interprovincial migration	Intraprovincial migration	International immigration[1]
	number		
North	-1,690	-2,980	355
Southeast	375	3,135	980
Rest of New Brunswick	125	-150	245

1. The National Household Survey does not provide any information on international emigration. Table 2.9 shows only international immigration; however, it is not net international migration.
Source: Statistics Canada, 2011 National Household Survey.

2.4 International migration

As the *New Brunswick Francophone Immigration Action Plan* indicates, international migration is central to the demographic challenges that New Brunswick's francophone communities are facing. Immigration is now perceived as an essential measure for ensuring the vitality of communities and halting the downturn in the demographic weight of francophones. Despite diversification in the provincial distribution of new immigrants since the early 2000s (Bonikowska et al., 2015), the province's francophone communities are still experiencing many difficulties in attracting and retaining immigrants. Between 2004 and 2013, not only did New Brunswick attract proportionally fewer immigrants than the rest of the country,[34] but scarcely 12% of the immigrants who settled in the province knew French when they arrived in Canada (Citizenship and Immigration Canada, 2014).

New Brunswick is also having trouble attracting francophone non-permanent residents.[35] In 2014, New Brunswick was the province of residence of fewer than 1% of the country's non-permanent residents.[36] Moreover, less than 15% of non-permanent residents in New Brunswick listed in the NHS had reported French as their first official language spoken, a figure that is once again much lower than the demographic weight of the francophone population in this province. Table 2.10 shows that international migration does not play much of a part in the size of New Brunswick's francophone population.

Table 2.10
Population distribution, by immigrant status, province and language group, 2011

Language group	Immigrants	Non-permanent residents	Non-immigrants
		percent	
Anglophone (New Brunswick)	4.9	0.5	94.6
Francophone (New Brunswick)	1.4	0.2	98.5
Francophone (Quebec)	7.7	0.5	91.8
Francophone (Ontario)	10.2	0.8	89.0
Francophone (Manitoba)	6.2	0.6	93.2
Total (Canada)	**20.6**	**1.1**	**78.3**

Source: Statistics Canada, 2011 National Household Survey.

In 2011, immigrants made up 1.4% of New Brunswick's francophone population, representing approximately 3,100 people whose first language spoken was French.[37] This proportion was less than one-third that of immigrants within the anglophone population of New Brunswick. It was also far below the corresponding percentage for the country's other three francophone groups that were looked at and that of Canadians as a whole. Francophone immigration in New Brunswick is characterized in particular by a combination of major waves from the past that arrived during the 1970s, mostly from the United States, and more recent waves from a wider variety of origins. Approximately 45% of francophones born outside the country were from the United States, while one in five francophones from abroad was born in either France (9.9%), Haiti (5.7%) or Morocco (3.4%).

With regard to non-permanent residents, just over 400 francophone non-permanent residents were living in New Brunswick in 2011. These people accounted for 0.2% of the province's francophone population as a whole: once again, a proportion much lower than that of the other language groups in the study. Accordingly, New Brunswick's francophone population was almost entirely composed of francophones born in Canada, in clear contrast with the populations of the other groups.

However, although the contribution of international migration to the size of New Brunswick's francophone population remains relatively low, it represents an increase from the beginning of the century. In 2001, New Brunswick was the province of residence of approximately 2,500 immigrants and 300 non-permanent residents whose first official language spoken was French, accounting for 1.1% and 0.1% respectively of the province's francophone population. Table 2.11 shows the distribution of francophones by immigrant status and sociodemographic characteristics.

34. Between 2004 and 2013, 0.7% of immigrants settled in New Brunswick, which nonetheless accounts for over 2% of the population of Canada.
35. Non-permanent residents are people from another country who hold a work or study permit or who are refugee claimants as well as members of their families covered by the same permit and living with them in Canada.
36. Statistics Canada. *Table 051-0041 - Number of non-permanent residents, by age group and sex for July 1, Canada, provinces and territories, annual (persons)*. CANSIM (database) (accessed: June 30, 2015).
37. This number climbs to approximately 3,400 when half of the people whose first official language spoken is English and French is included.

Table 2.11
Distribution of New Brunswick's francophone population, by immigrant status, 2011

Characteristics	Immigrants			Non-permanent residents	Non-immigrants
	Established immigrants (before 2000)	Recent immigrants (2000 to 2011)	Total		
			number		
Total counts	**1,920**	**1,205**	**3,125**	**415**	**227,595**
			percent		
Region of residence					
North	44.3	21.1	35.4	28.4	53.8
Southeast	38.9	61.5	47.6	62.2	34.3
Rest of New Brunswick	16.8	17.4	17.0	9.4	11.9
Age group					
0 to 14 years	0.2	22.3	8.7	5.2	12.9
15 to 24 years	2.2	22.4	10.0	34.2	10.5
25 to 34 years	2.4	25.0	11.1	19.8	11.7
35 to 44 years	29.0	18.5	24.9	20.7	13.1
45 to 54 years	19.2	7.1	14.6	8.1	17.8
55 to 64 years	24.6	3.3	16.4	2.1	17.5
65 to 74 years	11.5	1.4	7.6	3.5	10.0
75 years and older	10.9	0.0	6.7	6.5	6.5
Highest level of educational attainment†					
No certificate, diploma or degree	16.0	3.3	12.7	18.7	31.5
High school diploma or equivalent	19.3	29.9	22.1	28.3	19.4
Postsecondary certificate or diploma below bachelor level	32.0	21.1	29.1	25.0	34.4
University certificate or diploma at or above bachelor level	32.8	45.7	36.2	28.0	14.7

† the educational attainment figures presented are for persons aged 25 and over only
Source: Statistics Canada, 2011 National Household Survey.

The geographic distribution of immigrants and non-permanent residents differs from that of the rest of the francophone population, serving as further evidence of the significant gap between the north and the Moncton area. In fact, while the north is home to over half of New Brunswick's francophone population, only 35.4% of immigrants and 28.4% of francophone non-permanent residents live there. Conversely, the southeast is the region that benefits the most from international migration in that, although it accounts for one-third of New Brunswick's francophone population, it is home to nearly one in two francophone immigrants and approximately 60% of non-permanent residents. The lure of the southeast for francophone immigrants is even stronger for recent immigrants, i.e., those who arrived in Canada between 2000 and 2011, with close to two-thirds of them settling in this region.

The age structure of the immigrant population is also younger than that of the non-immigrant population, in particular for immigrants who arrived in Canada starting in 2000. Close to 90% of recent immigrants are under the age of 45, compared with just under half of the francophone non-immigrant population. Moreover, close to three in four non-permanent residents are in the 15-to-44 age group, reflecting the large number of foreign students in this population. A little over 45% of non-permanent residents aged 15 and over had attended school in the months leading up to the NHS.

Immigrants and non-permanent residents also differ from non-immigrants by virtue of their education levels. Over a third of New Brunswick's francophone immigrants aged 25 or older and close to 30% of non-permanent residents held at least a bachelor's degree, compared with 14.7% for non-immigrants. The contrast with the non-immigrant population is even greater among recent immigrants, of whom over 45% held at least a bachelor's degree. At the other end of the spectrum, immigrants and non-permanent residents are proportionally much less likely than non-immigrants not to have completed high school (12.7% and 18.7% versus 31.5%).

Not only were immigrants much better educated than non-immigrants, but the fields of study of those who held at least a bachelor's degree differed from those of non-immigrants. Immigrants who held at least a bachelor's degree were less likely to have done their studies in education (15.5% versus 25.5%) or health (14.7% versus 19.1%) and more likely to have earned a diploma in the humanities (12.8% versus 6.6%) or architecture and engineering (9.9% versus 5.1%).

Just over half of New Brunswick's francophone immigrants who had earned a postsecondary diploma did so in New Brunswick. This proportion was much higher than what was observed among anglophone immigrants in New Brunswick (33.4%) as well as Franco-Ontarian immigrants (38.1% of them earned their diploma in Ontario). Although these results can partly be explained by the influence of older waves of immigration, over a third of the immigrants who arrived between 2001 and 2011 and who had at least a bachelor's degree earned their highest degree in New Brunswick. Once again, this proportion far exceeds the corresponding proportions of anglophone immigrants in New Brunswick and Franco-Ontarian immigrants. These results therefore suggest that postsecondary institutions are likely to play a major role in attracting and retaining francophone immigrants and non-permanent residents.

Beyond the matter of attracting immigrants, New Brunswick's francophone communities are also facing major challenges in terms of retaining immigrants. A variety of studies have in fact reported lower retention rates for the province (Houle, 2007; Okonny-Myers, 2010). Linkage of the data from the NHS and from Citizenship and Immigration Canada (CIC)'s[38] Immigrant Landing File supports this finding. Table 2.12 shows the relative weakness of New Brunswick's retention rates for francophone immigrants who were admitted between 2000 and 2011.

Table 2.12
New Brunswick's retention rates for francophone immigrants admitted between 2000 and 2011, by certain characteristics, 2011

Characteristics	Retention rate (percent)
Total	**50.6**
Age group in 2011	
0 to 14 years	48.3
15 to 24 years	43.3
25 to 34 years	57.3
35 to 44 years	46.9
45 to 54 years	50.8
55 to 64 years	49.9
Educational attainment in 2011[1]	
No certificate, diploma or degree	54.3
High school diploma or equivalent	62.1
Postsecondary certificate or diploma below bachelor level	43.5
University certificate or diploma at or above bachelor level	55.1
Immigration category	
Family	73.5
Economic	44.4
Refugee	39.4
Source region	
Africa and the Middle East	43.3
Europe	74.7
Rest of the world	45.0

[1] the educational attainment figures presented are for persons aged 25 and over only

Sources: Statistics Canada, 2011 National Household Survey and Immigrant Landing File.

The data in this table indicate that half of all francophone immigrants who were admitted to New Brunswick between 2000 and 2011 and who still lived in Canada in 2011 had left the province, most of them to go to live in Quebec. This level of retention is considerably lower than that of anglophone immigrants (66.7%) and of francophone immigrants admitted to Ontario (70.4%), Quebec (96.6%) and Manitoba (76.0%). If we consider only francophone immigrants who arrived between 2000 and 2006 and who were still in the country in 2011, New Brunswick's retention rate decreases to 35.6%.

While rates fluctuate moderately in relation to immigrants' ages and education, they vary considerably when it comes to source country and immigration category. While just under 45% of immigrants whose first official language spoken was French and who came from Africa or the Middle East were still living in New Brunswick, this was the case for close to three in four immigrants from Europe.

Moreover, immigrants admitted under the family class were much more likely to still be in New Brunswick than other types of immigrants. Nearly three-quarters of the latter were still living in the province in 2011 compared with less than one-half of economic immigrants and refugees. The differences in the retention rates for New Brunswick immigrants by language group stem mainly from economic immigrants. The retention rates for anglophone immigrants (69.6%) were much higher than for francophone immigrants (44.4%) in this category.

38. Now known as Immigration, Refugees and Citizenship Canada (IRCC).

Because immigrants admitted to New Brunswick may move elsewhere in the country, the opposite situation is also possible. If we take into account immigrants who were admitted to another province or territory between 2000 and 2011 and who were still living in Canada in 2011, New Brunswick's net retention rate[39] climbs to 72.8%. However, this proportion is still lower than that of the province's anglophone immigrants (82.7%) and those of the francophone groups in Quebec, Ontario and Manitoba. Thus, although the contribution of a certain number of immigrants admitted in the rest of the country serves to mitigate the effect of New Brunswick's loss through migration, it is by no means adequate to offset the substantial number of francophone immigrants admitted to the province who left to go to other parts of the country.

It is important to note that immigrants, in particular those admitted recently, are also much more likely to emigrate to another country (Finnie, 2006). Such departures add to the number of migrations of immigrants to other parts of Canada and must therefore be considered from the broader perspective of retention of francophone immigration in New Brunswick.

Although immigration is generally seen as a catalyst that can contribute to the vitality of minority francophone communities, a number of studies have reported that immigrants perform less well on proficiency tests (Statistics Canada, 2013; Bélanger et al., 2013). This situation appears to be the result of certain skills-related obstacles that immigrants face with regard to, for example, the level of comfort with the language of tests[40] (Alphabétisation Ontario, 2000) and the country in which they were educated (McMullen, 2009).

The situation of immigrants in the Atlantic region[41] is different, however, in that it is the only region in which immigrants performed better on the literacy test than the native-born population. The average score of Atlantic immigrants on the PIAAC literacy test was 280, i.e., 10 points more than residents of this region who were born in Canada and close to 24 points more than immigrants in the rest of the country. The results in both cases can partly be explained by the different characteristics of Atlantic immigrants with regard to education levels and mother tongue, two factors that are closely associated with literacy skills.

In fact, more than 35% of immigrants who lived in the Atlantic region held at least a bachelor's degree, compared with slightly less than 30% for immigrants from elsewhere in Canada and close to 15% for people born in the Atlantic region.[42] It is also noted that just over three in four immigrants in the Atlantic region had either French or English as their mother tongue, while the same was true for just over half of immigrants from other parts of Canada. This is tied to a higher level of immigration from the U.S. or the U.K., with 40.4% of this region's immigrants having been born in one of those two countries, compared with 11.4% of immigrants who settled in other parts of the country.

When the effects of sociodemographic characteristics are taken into account, the average literacy score of immigrants from the Atlantic region was close to 9 points lower than that of the native-born population. These results suggest that the fact that immigrants performed better is largely tied to a sociodemographic composition conducive to high levels of proficiency. A review of literacy scores by period of arrival reveals that the higher performances of Atlantic immigrants can primarily be attributed to established immigrants (Table 2.13). These immigrants scored close to 290, or 20 points more than non-immigrants. For their part, immigrants who arrived between 2000 and 2012 tend to have performed less well, with an average score of just over 270. This distinction between established immigrants and recent immigrants suggests that the skills-related issues these two groups face could be very different.

39. The net retention rate takes into account both immigrants admitted to New Brunswick who leave for other parts of Canada and immigrants admitted elsewhere in the country who come to New Brunswick. A net retention rate of 100% indicates that the number of recent francophone immigrants is equal to the number that was admitted. This rate can obviously be higher than 100%.
40. The PIAAC tests could be completed only in English or French, and thus the respondent's level of comfort in the language chosen to take the test could have a definite influence on his or her results. This could be the case in particular for immigrants whose mother tongue was neither English nor French.
41. Because of the PIAAC sample size, the review of the data by immigrant status was carried out by grouping the data from the four Atlantic provinces and all language groups. The "immigrant" category also included non-permanent residents.
42. In New Brunswick, just over one-third of francophone immigrants aged 25 and older earned at least a bachelor's degree, compared with just under 15% of non-immigrant francophones only.

Table 2.13
Average literacy scores of the population of the Atlantic provinces and proportion in the lower range of the proficiency scale,[1] by immigrant status, 2012

	Average literacy score	Proportion of population in lower range of scale
Total	**259**	**61.2**
Immigrant status (Atlantic provinces)†		
Non-immigrants (ref.)	270	52.9
Immigrants	280*	43.8
Immigrants who arrived before 2000	289*	37.4*
Immigrants who arrived between 2000 and 2012	271	50.5

* significantly different from reference category at a 95% confidence level ($p < 0.05$)

† in light of the Programme for the International Assessment of Adult Competencies sample size, the review of the data by immigrant status was completed by grouping the data from the four Atlantic provinces and all language groups. The "immigrant" category also included non-permanent residents

(ref.) Reference category

1. Below Level 3.

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

The more recent immigrant cohorts came from a wider variety of sources, a finding that holds true for immigrants in the Atlantic region as a whole as well as for New Brunswick's francophone immigrants. In the event that the province's francophone communities are able to attract and retain more immigrants in the coming years, the latter could have a level of literacy proficiency similar to that of recent immigrants elsewhere in the country. The skills-related challenges that recent immigrants in New Brunswick face are likely to be the same as those of recent immigrants in the rest of the country.

2.5 Conclusion

Just under 250,000 francophones were living in New Brunswick in 2011, representing approximately a quarter of Canada's French-speaking population outside Quebec. The francophone population is growing at a slower pace than the anglophone population, largely because of lower population growth and incomplete transmission of French. Because of these dynamics, the demographic weight of New Brunswick francophones has decreased somewhat in recent decades, and the francophone population is aging more rapidly than the anglophone population. Moreover, because of very different migration dynamics, the demographic realities of the province's francophone communities are fairly dissimilar. While the population in the north is declining and is experiencing very rapid population aging, the far more urban communities in the southeast have seen a strong increase in the number of people living there.

While francophone communities are facing many demographic challenges, two stand out in particular: a rapidly aging population and a fairly low level of net migration. A number of studies have identified this situation as a major impediment to the development of francophone communities over the past several decades (see, for example, Pépin-Filion et al., 2015; Forgues et al., 2009; Government of New Brunswick, 2014). The relatively low proportion of francophones among the immigrant population, which is much lower than the relative weight of New Brunswick's francophone population, serves to exacerbate demographic trends that are disadvantageous to francophones.

Demographic dynamics bear directly on the literacy skills of New Brunswick francophones. Those who are more educated and who display reading habits associated with higher levels of literacy proficiency are more likely to be mobile. Migration trends, among young people in particular, exert a type of "selection" in which the number of people with higher average literacy scores who leave is not offset by the number coming in. The impact is especially pronounced for francophones in the northern part of the province. This "selection" leads to increased aging of the population, another factor associated with lower literacy skills.

In short, New Brunswick francophones, and in particular those who reside in the north, post lower literacy skill levels because they are less educated and have a lower level of reading-related cultural capital. This is because more educated people with more reading-related cultural capital, who tend to have higher levels of literacy proficiency, are more likely to leave the province. In this context, we need to understand why migration trends and this "selection" effect have a greater impact on New Brunswick's francophone population. This will be discussed in the next chapter.

3. New Brunswick's economy and labour market: The virtuous circle of literacy

The labour market is a special place where individuals can apply their literacy skills once they have completed their education. In return, a work environment that calls on literacy skills fosters the maintenance and even the development of such skills. As we saw in the first chapter, training, reading and the use of written materials at work are associated with better literacy skills. We also saw in the first chapter that the gaps between New Brunswick francophones and anglophones in terms of literacy persist, primarily because francophones are less educated and have a lower level of reading-related cultural capital.

Relative weakness in terms of literacy skills may have serious economic consequences. According to the OECD (2013), "If large proportions of adults have low reading and numeracy skills, introducing and disseminating productivity-improving technologies and work-organisation practices can therefore be hampered." These impacts may be especially significant when economic conditions are unfavourable, as has been the case in New Brunswick for a number of years. According to Beaudin (2014), since 2004 the province has been witnessing a contraction in its resource-based economic base and a substantial decline in employment in the primary and manufacturing sectors. The serious recession in the U.S. at the beginning of 2008 exacerbated this phenomenon.

Difficulty in adjusting the economic base of resource-dependent regions ensued. The resulting population aging in these regions was made worse by migration towards the province's major urban centres or other parts of the country, Western Canada in particular. This migration thus exacerbated the divide between the economic regions in the centre and the surrounding urban areas and small population centres. In the second chapter we learned that this migration exerted a "selection effect" that is having a negative impact on the literacy skills observed among New Brunswick francophones; first directly, through negative net migration involving the most skilled people in particular, and then indirectly, by increasing population aging. Why do these demographic dynamics have more of an impact on New Brunswick francophones?

The connection between the labour market and demographic dynamics has been extensively documented. The way the labour market is structured partly explains why New Brunswick francophones have accumulated net outflows in the more educated and skilled portions of the population and why population aging is so pronounced there. This chapter explores the characteristics of the labour market in New Brunswick. We will begin by detailing the main characteristics of New Brunswick in general, and then of francophones in particular. We will see the extent of the north-south divide in New Brunswick's economic dynamics and its effects on the comparisons between language groups. Lastly, we will detail the connections between skills, demographics and the labour market and provide examples.

3.1 The labour market

The economic difficulties New Brunswick is facing are not so much the result of negative conditions brought about by the U.S. recession in the late 2000s but rather a strong trend that has been in effect for several decades. The labour market in this province has long been characterized by higher unemployment, a less educated labour force and a lower labour force participation rate. In 2014, New Brunswick's unemployment rate was 9.8%, or nearly 3 percentage points higher than that of the country as a whole.[43]

Moreover, the productivity of New Brunswick's economy is much lower than that of Canada as a whole. In 2014, labour productivity[44] for New Brunswick's overall economy was 41.2, placing it below the Canadian average of 53.0.[45] This lower productivity is manifested in lower salaries and could impede investment in certain sectors, in particular those relating to the knowledge-based economy.

43. Statistics Canada. *Table 282-0002 – Labour force survey estimates (LFS), by sex and detailed age group, annual*, CANSIM (database). (accessed: February 24, 2016).
44. Labour productivity is determined to be the ratio between real added value and hours worked.
45. Statistics Canada. *Table 383-0029 – Labour productivity and related variables by business sector industry, consistent with the North American Industry Classification System (NAICS) and the System of National Accounts (SNA), provinces and territories, annual*, CANSIM (database). (accessed: February 24, 2016).

More recently, because of its strong reliance on exports to the U.S., New Brunswick's economy has also been adversely affected by the U.S. recession. For example, the forest industry has been hard hit. Despite a recent recovery, production levels remain below what they were before the recession (Couture and Macdonald, 2013). At the same time, more and more exports are heading to China (Carrière, 2014), a trend that could place New Brunswick's forest industry at a disadvantage in light of the greater difficulty in accessing the Chinese market because of the distances involved.

Accordingly, we are witnessing a greater contraction of the economic base built on natural resources and the manufacturing sector—the pillars of the province's economy—and the emergence of sectors associated with a knowledge-based economy. These so-called "dynamic" sectors are especially conducive to innovation and economic progress in that they deliver basic services to all other sectors (Baldwin et al., 1998). However, to continue flourishing, these sectors tend to require a highly specialized and skilled labour force. According to projections commissioned by the Government of New Brunswick, 27% of the jobs that will be available in the coming years will require a university degree, while 34% will require a college diploma (Government of New Brunswick, 2014c). It is also noted that problem-solving, oral and written communication and numeracy are currently among the skills most sought after by the province's employers (Government of New Brunswick, 2014c).

In this generally difficult context, the employment situation of the province's francophones seems to be worse than that of their anglophone counterparts. New Brunswick francophones are at a disadvantage on three of the major labour market indicators. According to the NHS data, the unemployment rate of New Brunswick francophones is 12.4%: two percentage points higher than that of anglophones. At the same time, the employment rate and the labour force participation rate of New Brunswick francophones are lower than those of the other groups studied. In all three cases, the differences between francophones and anglophones are due in large part to the particularly negative situation of older generations. With regard to unemployment, the gap between francophones and anglophones in New Brunswick is 6.1 percentage points among people aged 55 to 64, for example, compared with 0.7 percentage points among people aged 25 to 34, again in the anglophones' favour. However, a significant portion of the disparity between francophones and anglophones in terms of unemployment can be explained by factors such as region of residence and education level.

With regard to income, it has been noted since 2006 that francophones have been catching up in every Canadian province and in the territories, except in New Brunswick. The series of portraits of official-language minorities in Canada published by Statistics Canada[46] indicates that the median income of francophones is equal to or higher than that of anglophones in every other province, as well as in every territory, for both women and men. That same year, the median income of anglophones in New Brunswick was higher than that of francophones, for both women ($17,948 for those whose first official language spoken was English and $17,040 for those for whom it was French) and men ($29,159 for those whose first official language spoken was English and $26,540 for those for whom it was French).[47]

Today, New Brunswick francophones still work in sectors different from those worked in by anglophones, meaning that certain sectors rely on a highly francophone labour force while others employ a relatively low number of workers in this language group. Table 3.1 attests to this by presenting the distribution by industry sector of the province's workers for each language group.

46. Statistics Canada, http://www5.statcan.gc.ca/olc-cel/olc.action?ObjId=89-642-X&ObjType=2&lang=en&limit=1.
47. The National Household Survey estimates a similar gap between francophones and anglophones with regard to median income in 2010 for men ($33,939 for anglophones compared with $31,421 for francophones), whereas there is virtually no gap observed for women ($21,671 for anglophones compared with $21,665 for francophones).

Table 3.1
Distribution of workforce by official language group and proportion of francophone workers, by industry sector, New Brunswick, 2011

Industry sector	Distribution		Proportion of workforce who were francophone
	Francophones	Anglophones	
	percent		
Agriculture, forestry, fishing, mining, quarrying, oil and gas extraction	7.0	4.7	41.0
Utilities	0.6	1.3	18.5
Construction	8.3	7.2	35.3
Manufacturing	10.8	7.3	40.9
Trade	13.5	15.8	28.7
Transportation and warehouse	3.9	5.3	25.8
Finance, insurance, real estate and leasing	4.2	4.4	30.8
Professional, scientific and technical services	3.0	4.7	23.4
Business, building and other support services	3.2	5.9	20.3
Education services	7.2	6.8	33.2
Health care and social assistance	14.2	11.6	36.4
Information, culture and recreation	3.5	3.7	30.3
Accommodation and food services	5.5	6.9	27.2
Other services	4.6	4.7	31.8
Government	10.3	9.8	33.0
Total	**100.0**	**100.0**	**31.9**

Source: Statistics Canada, 2011 National Household Survey.

In some cases there are major differences in the distribution of workers in the two language groups. Health care and social assistance is the sector that employs the most francophones (14.2%), while trade is the largest employer of anglophone workers (15.8%). Francophones are much more inclined to work in manufacturing (10.8% of francophone workers are employed in this sector compared with 7.3% of anglophones) and natural resources (7.0% of francophone workers are employed in this sector compared with 4.7% of anglophones). The main consequence of this distribution is that the proportion of workers whose first official language spoken was French fluctuated considerably from one sector to another. While francophones represented over 40% of the labour force in the primary resources and manufacturing sectors—eight percentage points more than their demographic weight on the labour market—they made up less than one-quarter of that in the utilities, business services and scientific services sectors.

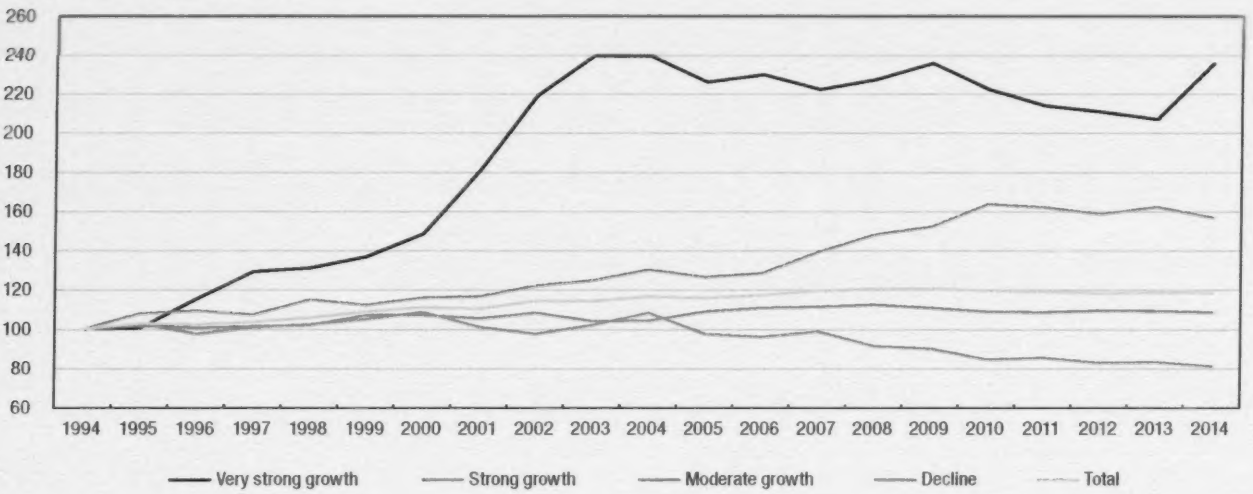
3.2 Trends in the number of jobs by industry sector

With the changes in New Brunswick's economy, some industry sectors are emerging, while others are declining. Largely because of their geographic location and education levels, francophones are less likely than their anglophone counterparts to work in sectors that are growing.

We can divide the industry sectors in New Brunswick into four major groups based on their rate of growth over the past 20 years.[48] Chart 3.1 compares these four categories of industry sectors, while Table 3.2 presents the distribution of each language group by industry sector category.

48. The industry sectors that make up each group are presented in Appendix 5.

Chart 3.1
Trends in the number of jobs (1994=100) by industry sector category, New Brunswick, 1994 to 2014



Sources: Statistics Canada, Labour Force Survey, 1994 to 2014, and 2011 National Household Survey.

Table 3.2
Distribution of francophones and anglophones, by industry sector category, 2011

	Relative weight of francophones within the category	Francophones		Anglophones	
	percent	number	percent	number	percent
Very strong growth	21.8	8,575	6.3	30,770	10.6
Strong growth	36.0	30,870	22.6	54,775	18.8
Moderate growth	30.0	73,080	53.4	170,650	58.6
Decline	41.0	24,270	17.7	34,925	12.0
Total	**31.9**	**136,795**	**100.0**	**291,115**	**100.0**

Source: Statistics Canada, 2011 National Household Survey.

The main conclusion that emerges from this table is that francophone workers tend to be employed in sectors in which growth in the number of jobs is lower. Although francophones constituted 31.9% of New Brunswick's labour force, they represented only 21.8% of the labour force in sectors that experienced very strong growth in the number of jobs between 1994 and 2014. In other words, sectors with very strong growth employed 6.3% of francophone workers, compared with 10.6% of anglophone workers. In 2014, the number of jobs in these sectors more than doubled compared with the 1994 level.

Conversely, more than 40% of the labour force in declining sectors had French as their first official language spoken. These 24,270 workers represent 17.7% of the francophone labour force, while declining sectors employed 12.0% of the anglophone labour force. Aside from a few ups and downs, the number of jobs in these sectors, which represent primary resources and manufacturing, has been continually decreasing, to the extent that in 2014 it was down by nearly 20% from 1994.

However, francophones are also overrepresented, albeit to a lesser extent, in the health care and construction sectors, which underwent strong growth between 1994 and 2014. The high numbers of francophones in these two sectors contribute to the overrepresentation of this language group in the category that takes in employment sectors with strong growth. However, it does not offset the imbalance observed in sectors with very strong growth and declining sectors. The average rate of growth between 1994 and 2014 in the sector in which a given francophone worker was working in 2011 is 22.6%, compared with 28.1% for an anglophone worker.[49]

49. This proportion is calculated by multiplying each sector's rate of growth between 1994 and 2014 by the number of francophone workers in the sector in 2011, then dividing this number by the total number of francophone workers in 2011. The same is done for the anglophone group.

The divide between declining sectors and those with very strong growth can also be seen in the age structure of francophone workers in that workers in declining sectors tend to be older than those in emerging ones (see Table 3.3). In fact, close to 6 out of 10 francophones who worked in declining sectors were aged 45 and older, compared with 40% of those in sectors experiencing very strong growth, a difference of approximately 17 percentage points.

Table 3.3
Characteristics of francophone workers in New Brunswick, by industry sector category, 2011

Characteristics	Very strong growth	Strong growth	Moderate growth	Decline	Total
	percent				
Age group					
16 to 24 years	15.9	9.5	17.7	9.4	**14.3**
25 to 34 years	22.4	20.0	17.9	15.4	**18.2**
35 to 44 years	21.3	22.0	20.1	17.3	**20.1**
45 to 54 years	21.0	26.2	24.2	32.0	**25.8**
55 to 64 years	15.6	19.5	17.1	22.4	**18.5**
65 years and older	3.9	2.8	3.0	3.4	**3.1**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Highest level of educational attainment					
No certificate, diploma or degree	12.6	18.1	16.9	36.8	**20.4**
High school diploma or equivalent	23.2	18.5	25.5	27.7	**24.2**
Postsecondary certificate or diploma below bachelor level	40.0	45.7	36.6	30.6	**37.8**
University certificate or diploma at or above bachelor level	24.3	17.7	21.0	5.0	**17.6**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Level of complexity of position according to 2011 National Occupational Classification					
Level of complexity A: Managers	4.9	4.5	9.4	5.8	**7.4**
Level of complexity A: Professionals	23.2	17.2	15.4	2.5	**14.0**
Level of complexity B: College or apprenticeship	25.2	41.6	28.8	32.9	**32.2**
Level of complexity C: Secondary school or specific job training	30.5	23.5	31.1	36.6	**30.3**
Level of complexity D: On-the-job training	16.2	13.2	15.3	22.1	**16.1**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Statistics Canada, 2011 National Household Survey.

Workers in declining sectors were also characterized by lower education levels. In fact, only 5% of workers in those sectors had an undergraduate degree, while this was true of a quarter of workers in sectors undergoing very strong growth. Conversely, declining sectors were characterized by a very high proportion of francophone workers who had not completed their secondary studies (36.8%).

Table 3.3 also reveals the weak representation of professional jobs associated with a high level of complexity[50] in declining sectors. Only 2.5% of the jobs had this level of complexity in declining sectors, while the proportion was greater than 15% in all other industry categories observed.

A significant number of francophone workers were employed in industry sectors in decline. These workers tended to be less educated and to hold less complex positions, and their literacy proficiency levels were generally lower than those of workers in other sectors. As Table 3.4 shows, workers in industry sectors in decline performed less well on the Programme for the International Assessment of Adult Competencies (PIAAC) literacy test and were less likely to use written materials in their jobs.

50. In the 2011 National Occupational Classification, complexity is generally defined as the level and type of studies and training required to fill a position and perform the duties. In determining the level of complexity, the experience needed to fill the position is also taken into account, as are the complexity and the responsibilities that apply to the occupation in relation to other occupations (Statistics Canada, 2012). This indicator is generally referred to as the skill level. However, because it is based on the position rather than the person who holds the position, and to avoid confusion with skill level as it relates to literacy, numeracy and problem-solving as identified in PIAAC, we will use the term "level of complexity" to refer to this indicator.

Table 3.4
Average literacy scores and composite index of reading at work of New Brunswick workers,† by industry sector, 2012

Indicator	Sectors with very strong growth	Sectors with strong growth	Sectors with moderate growth	Declining sectors (ref.)
Average literacy score	285*	269	278*	258
Composite index of reading at work‡ (%)	46.1*	41.0	46.8*	33.3
Participation in training activities‡ (%)	54.5	54.0	59.6*	41.5

* significantly different from reference category at a 95% confidence level ($p < 0.05$)

† in light of the Programme for the International Assessment of Adult Competencies (PIAAC) sample size, the data presented in this table represent all New Brunswick workers. This decision was reached for several reasons. First, the size of the sample of New Brunswick francophones was reduced by excluding respondents who were not employed at the time when PIAAC data were collected. Second, mainly because of the sample size, the differences between New Brunswick anglophones and francophones do not appear to be statistically significant

‡ in PIAAC, respondents were asked to report the frequency with which they engaged in reading eight types of materials (letters and emails, newspapers, reference materials, etc.) at home and at work. A composite index from 0 to 100 was constructed based on the responses to these questions to measure PIAAC respondents' general reading habits. The closer the index is to 100, the more frequent the respondent's reading

(ref.) reference category

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Workers in declining sectors posted an average score of less than 260 on the PIAAC literacy test, more than 18 points lower than the scores of workers in sectors experiencing very strong growth and sectors with moderate growth. They also used written materials less regularly at work. The composite index of reading at work (Table 3.4) for employees in these sectors was statistically lower than those of workers in sectors with very strong growth and sectors in which growth in the number of jobs was moderate. The disadvantageous situation of workers in declining sectors can also be seen from the level of participation in training activities. Workers in these sectors participated less in training activities than those in sectors with moderate growth.

Education being the primary driver of literacy skills, these results are very much in line with the differences in workers' education levels observed earlier. Those in declining sectors were considerably less educated than their counterparts in other sectors, in particular in sectors with very strong growth.

3.3 North–south divide

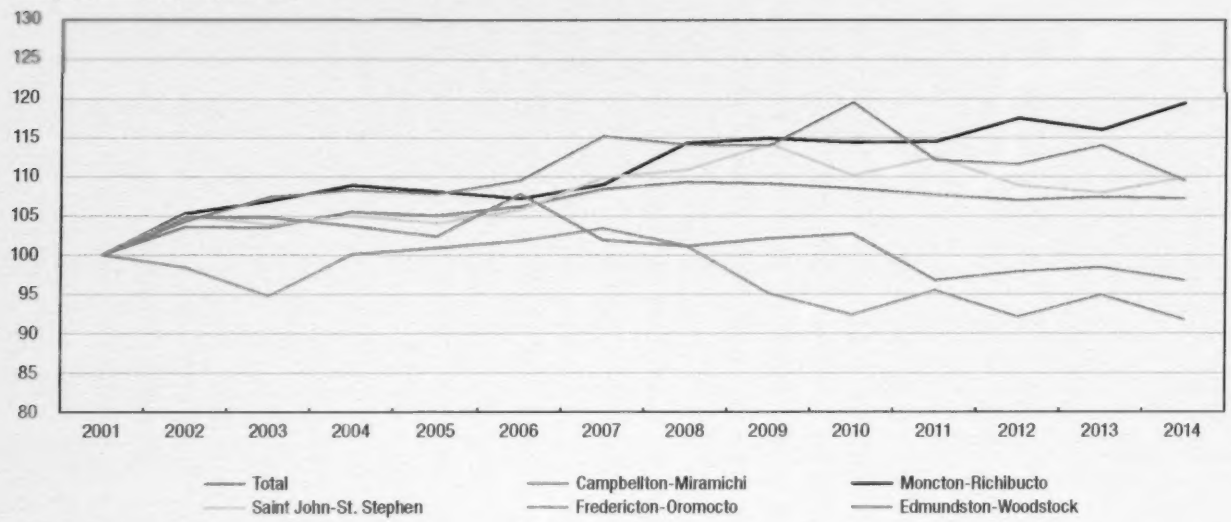
The negative socioeconomic situation of New Brunswick francophones compared with that of their anglophone counterparts and the other francophone groups that have been in place for the past several decades have been commented on by a number of authors (Beaudin, 1999; Lepage, 2012; Chennouf, 2014). These studies suggest that this situation is not so much a matter of francophones' lower education levels as their geographic location, which tends to be outside the province's major urban centres. Those centres encompass greater diversification in the service and non-resource based manufacturing sector. In particular, substantial employment growth is observed in the "dynamic" sectors of the economy (such as professional and technical services, business support services, communications, informatics services and financial services). According to Gellatly et al. (1999),[51] these sectors are central to innovation, and their dynamic contribution to growth and economic progress is strengthened by the fact that they deliver basic services to all other sectors.

The changes in New Brunswick's economy in recent decades have resulted in a growing divide between the north of the province, which is rural and francophone, and the south, which is urban and mostly anglophone. While New Brunswick's overall economy is less dynamic than that of the country as a whole, the province's two census metropolitan areas, Moncton and Saint John, present a much more favourable economic situation than in the northern part of the province. From a broader perspective, while the labour market in the revitalized corridor that extends from Fredericton to Halifax is doing fairly well economically, the outlying areas seem to be adapting less well to the changes in the province's economy (Beaudin, 2014).

Charts 3.2 and 3.3 respectively show the trends in the number of jobs and the unemployment rate by economic region[52] in New Brunswick and the scale of the gap between the northern and southern parts of the province in terms of economic vitality.

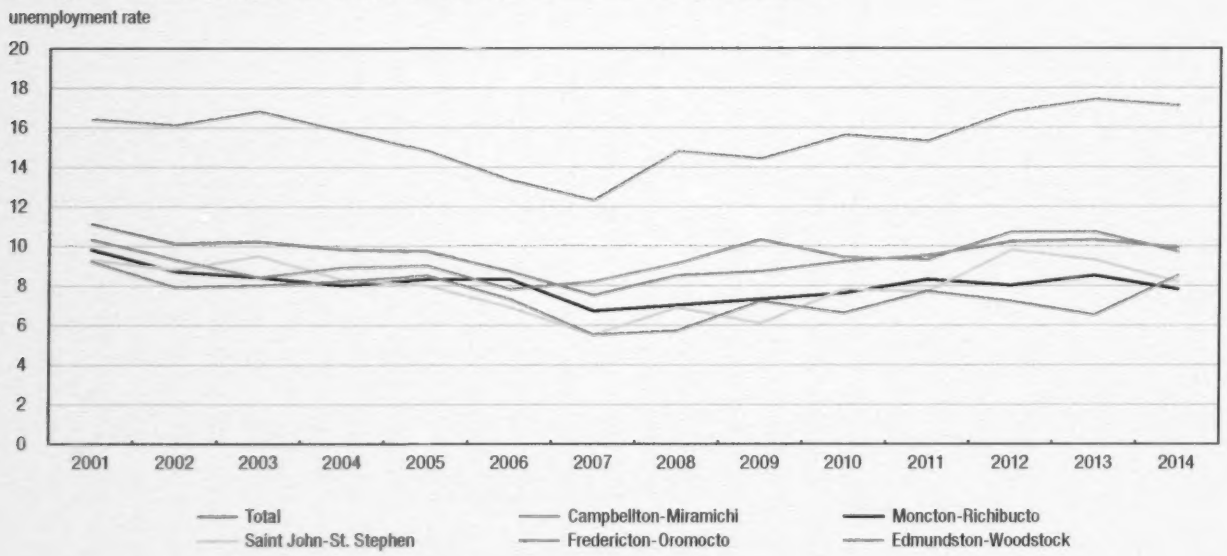
51. See Gellatly, G., J. Johnson, J. Baldwin and V. Peters (1999), *Innovation in Dynamic Service Industries*, Statistics Canada, Catalogue no. 88-516-X.
52. Economic regions overlap with the regions identified in the previous chapter that are used throughout the report. Economic regions are used here because they constitute the most sophisticated level of geography for which the Labour Force Survey produces estimates on employment situation. Appendix 6 lists the census divisions in each economic region.

Chart 3.2
Changes in the number of jobs (2001=100), by economic region, New Brunswick, 2001 to 2014



Sources: Statistics Canada, Labour Force Survey, 2001 to 2014, and 2011 National Household Survey.

Chart 3.3
Changes in the unemployment rate, by economic region, New Brunswick, 2001 to 2014



Sources: Statistics Canada, Labour Force Survey, 2001 to 2014, and 2011 National Household Survey.

The data presented in these two charts clearly show that economic conditions in the regions in which New Brunswick francophones live are more difficult. While the number of jobs increased by approximately 7% between 2001 and 2014 for the province as a whole, the economic regions of Campbellton-Miramichi and Edmundston-Woodstock witnessed decreases in this regard (-8% and -3% respectively). These two very francophone regions, located in the northern and north-western part of the province, are rural in nature, and resource-based industries have traditionally been important there. Half of the workers in the economic region of Edmundston–Woodstock

and close to two-thirds of those in the Campbellton-Miramichi region were francophone in 2011 (Table 3.5). The decline in the number of jobs in the Campbellton-Miramichi region was also accompanied by an unemployment rate consistently above 12%, by far the highest of any economic region.

Table 3.5
Distribution of francophones and anglophones and relative weight of francophones, by economic region, New Brunswick, 2011

Region	Relative weight of francophones within the region	Francophones		Anglophones	
	percent	number	percent	number	percent
Campbellton-Miramichi	63.7	53,405	39.0	30,280	10.4
Edmundston-Woodstock	50.7	22,225	16.2	21,540	7.4
Moncton-Richibucto	42.6	52,090	38.1	69,925	24.0
Fredericton-Oromocto	6.9	5,560	4.1	75,210	25.8
Saint John-St. Stephen	3.6	3,510	2.6	94,165	32.3
Total	**31.9**	**136,795**	**100.0**	**291,120**	**100.0**

Source: Statistics Canada, 2011 National Household Survey.

In contrast, francophones in the Moncton–Richibucto region, who represented just over 4 in 10 workers, were in a much more positive labour market. Between 2001 and 2014, the number of jobs in this region climbed by nearly 20%, while the unemployment rate has hovered around 8% since 2002, despite the economic downturn that hit the province with the most recent recession.

The north–south disconnect in New Brunswick is clearly visible in that workers in declining sectors are proportionally more numerous in the north, while workers in emerging sectors tend to live in the southeast (Table 3.6). Although the north accounted for only half of New Brunswick workers whose first official language spoken was French, this region was home to close to 60% of workers employed in declining sectors, including nearly 70% of workers in the primary sectors of the economy.

It is worth noting that just over one in five francophone workers residing in the northern part of the province worked in a declining industry sector. Conversely, less than 40% of francophone workers in sectors with very strong growth lived in the north. We note nonetheless that the north had jobs in the strong-growth sectors of construction and health care. The sustained growth in the number of jobs in the health care sector is likely to continue in the coming years because of population aging.

For its part, the southeast was home to nearly half of all francophones working in sectors with very strong growth, despite the fact that only 37.3% of francophone workers lived there. In the southeast, 7.9% of francophones worked in one of these sectors, while declining sectors accounted for only 13.1% of francophones.

Table 3.6
Distribution of francophone workers in New Brunswick, by industry sector category and region of residence, 2011

Characteristics	Very strong growth	Strong growth	Moderate growth	Decline	Total
			percent		
Francophone workers	21.8	36.0	30.0	41.0	**31.9**
Region of residence					
North	38.3	54.7	46.4	59.7	**50.1**
Southeast	47.1	35.9	40.0	27.6	**37.3**
Rest of New Brunswick	14.7	9.4	13.7	12.7	**12.6**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Statistics Canada, 2011 National Household Survey.

Because of the lower education levels of New Brunswick francophones as well as their geographic location, they tended to hold jobs that entailed a lower level of complexity. To that effect, 16.1% of the province's francophone workers held positions that called for on-the-job training only, compared with 14.3% of anglophone workers. By way of comparison, such positions were held by 10.2% of Franco-Ontarian workers, nearly six percentage points lower than for francophone workers in New Brunswick (Table 3.7).

At the other end of the spectrum, francophone workers in New Brunswick were under-represented in jobs that entail a very high level of complexity. Much less when compared to their anglophone counterparts, yet more than for other francophone workers in Canada: 14.0% of francophone workers in New Brunswick held such employment, 0.5 percentage points less than for anglophones and 7 percentage points less than for francophone workers in Ontario[53].

Table 3.7
Labour market characteristics, by language group and economic region, 2011

Level of complexity of position according to 2011 National Occupational Classification	Anglophone (New Brunswick)	Francophone (New Brunswick)				Francophone (Quebec)	Francophone (Ontario)	Francophone (Manitoba)	Total (Canada)
		North	Southeast	Rest of New Brunswick	Total				
	percent								
Level of complexity A: Managers	9.5	7.2	7.4	8.3	7.4	9.3	11.2	11.6	**10.7**
Level of complexity A: Professionals	14.5	11.8	16.3	15.9	14.0	16.7	21.4	17.9	**17.6**
Level of complexity B: College or apprenticeship	31.8	32.0	31.4	35.1	32.2	33.1	31.3	31.7	**31.0**
Level of complexity C: Secondary school or specific job training	29.9	30.1	31.1	29.0	30.3	28.2	25.9	28.3	**28.3**
Level of complexity D: On-the-job training	14.3	18.9	13.7	11.7	16.1	12.7	10.2	10.4	**12.4**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Unemployment rate[1]	10.3	14.2	10.1	12.4	12.4	6.8	6.5	4.0	**7.8**
Employment rate[1]	57.3	50.5	61.2	57.6	55.1	60.5	59.4	61.3	**60.9**
Participation rate[1]	63.8	58.8	68.1	65.8	62.9	64.9	63.5	63.9	**66.0**

[1] these statistics have been taken from the National Household Survey in order to produce them for the different language groups studied. Accordingly, they are slightly different from the statistics from the Labour Force Survey

Source: Statistics Canada, 2011 National Household Survey.

The north–south divide was in evidence here as well. Because the economy in the north is based largely on natural resource development, and because this region is home to a francophone population that is less educated, francophones in the north tended to hold positions with a lower level of complexity compared with their counterparts in other parts of the province. Just under 20% of francophone workers in the north held positions that required only on-the-job training, compared with less than 15% for those in the southeast and the rest of the province.

In short, New Brunswick francophones definitely appear to be at a disadvantage on the labour market compared with province's anglophones, as well as with the other francophone groups in Canada, but it is also evident that there were significant disparities within New Brunswick's francophone communities. These economic disparities were largely manifested in a north–south split. The north, where the majority of the province's francophones were concentrated, was therefore especially disadvantaged from an economic perspective.

These economic disparities reflected the differences in terms of skills and education that were documented in the first chapter, as well as those involving demographic trends as detailed in the second chapter. These convergences reinforce the idea of a strong connection between these three major dimensions, which we will explore in the next section.

53. The category "skill level A: managers" is omitted from this analysis because it groups occupations requiring very diverse educational backgrounds and skill levels.

3.4 The virtuous circle of literacy

The connections between literacy skills, demographic dynamics and major labour market trends are becoming stronger, and a "self-catalyzing" circle can be either vicious or virtuous. The associations between skills, population aging, the effects of migration and the socioeconomic characteristics of immigration are four examples of the linkages that support these dynamics, in either a positive or a negative way.

3.4.1 Skill match

We saw earlier that francophone workers were overrepresented in a number of industry sectors. Jobs in specific sectors may offer more opportunities to engage in reading, thus helping workers maintain or even improve their literacy skills.[54] Francophone workers in the employment sectors of education, law and social, community and government services were those who performed the best on the PIAAC literacy test, with an average score of close to 300 (Table 3.8). Notably, half of the workers in those employment sectors held at least a bachelor's degree, the highest proportion among the 10 major employment groups. Moreover, workers in those sectors were among those who used written materials most often at work.

Conversely, the average score of workers in the sales and services, trades and transport, natural resources and manufacturing sectors was below 260. Workers in those sectors were by far the least educated; fewer than 6% held at least a bachelor's degree, while more than 20% of them—and over 40% in the natural resources and manufacturing sectors—had not completed high school. Those workers were also the ones who read the least at work.

Table 3.8
Average literacy scores of New Brunswick francophones and proportion in the lower range of the proficiency scale,[1] by employment sector, 2012

Characteristics	Average literacy score	Proportion of francophones in lower range of scale
Total	**259**	**61.2°**
Management occupations	285	42.6
Business, finance and administration	270*	56.3
Natural and applied sciences and related occupations	295	20.6
Health	275	50.7
Occupations in education, law and social, community and government services (ref.)	298	26.1
Arts, culture, recreation and sport	264	60.7
Sales and services	257*	63.0*
Trades, transport and equipment operators and related occupations	245*	71.9*
Natural resources, agriculture and related production occupations	248*	70.2
Manufacturing and utilities	239*	76.5*

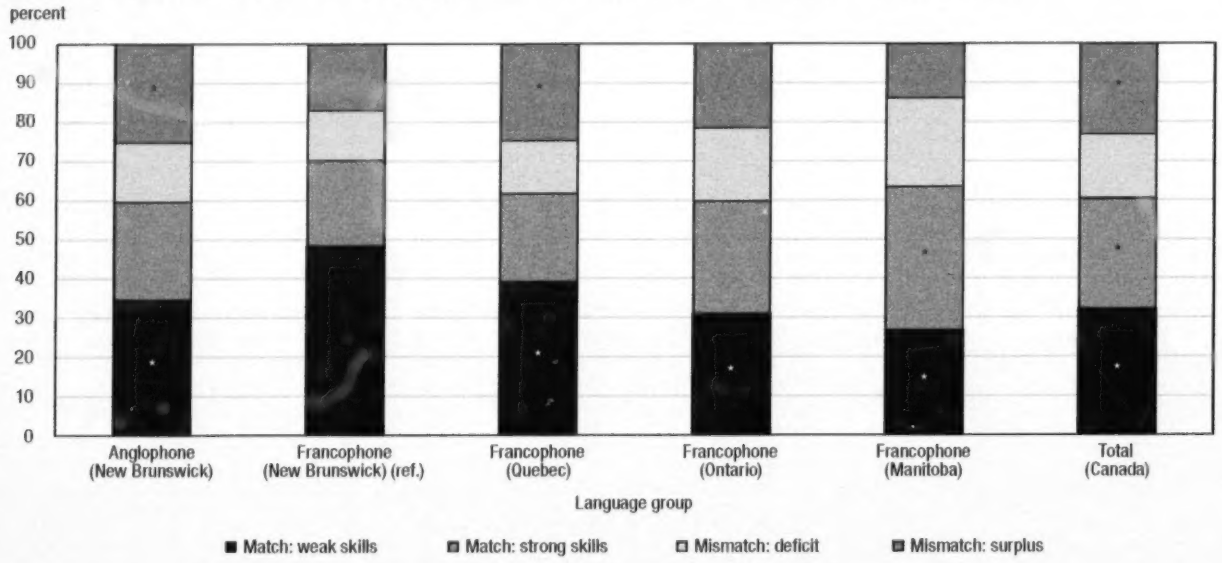
* significantly different from reference category at a 95% confidence level ($p < 0.05$)
° statistically significant difference in relation to the value for New Brunswick anglophones at a 95% confidence level
(ref.) reference category
1. Below Level 3.
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

The connections between literacy proficiency level and an advantageous position on the labour market are obvious. The labour market not only enables workers to benefit from their skills, though higher incomes and greater professional validation, for example; it also provides them with various opportunities to use their skills so that they can maintain and even enhance them. The labour market therefore plays a pivotal role in the "virtuous circle of literacy" and represents its culmination. However, in order to take full advantage of their literacy proficiency, workers must also be able to hold a job that enables them to use the full range of their skills. Otherwise, these "overqualified" workers are less likely to reap the benefits associated with their skills and are at greater risk of seeing them diminish because of less frequent use. At the same time, less skilled workers who use their skills at work infrequently stand to perform less well on the labour market and to have fewer opportunities to develop their skills.

54. The employment sector was chosen here rather than the industry sector, because it better represents the type of task performed by the respondent as part of his or her employment.

This connection between skills and their use at work is a key element of the socioeconomic vitality of communities. The OECD (2013) notes as follows: "If there is one central message emerging from this new survey, it is that what people know and what they do with what they know has a major impact on their life chances." PIAAC shines a light on how skills match with reading at work[55] by juxtaposing respondents' proficiency levels with their use of reading as part of their employment. Chart 3.4 shows skill match by province and language group based on the criterion developed by Desjardins and Rubenson (2011).[56]

Chart 3.4
Distribution of skill match, by language group, New Brunswick, Quebec, Ontario, Manitoba and Canada, 2012



* significantly different from reference category (proportion of New Brunswick francophones) at a 95% confidence level ($p < 0.05$)
(ref.) reference category
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

One major finding emerges from looking at this chart: for close to half of all francophone workers in New Brunswick, weak literacy skills are matched with a low level of use of written materials at work. There were proportionally more francophones in this situation compared with their anglophone counterparts (34.6%) and francophones in other provinces. This situation clearly attests to the lower skill levels of New Brunswick francophones and the fact that they held positions that required less literacy proficiency. Moreover, although this finding would initially suggest that francophones held positions that matched their skill levels, it nonetheless reaffirms that a substantial percentage of francophone workers were having difficulty entering into this "virtuous circle of literacy", and thus their skills, which were low at the outset, are in danger of eroding over time.

As a direct consequence of the differences in workers' skill levels and their use of written materials at work, workers' skill match levels fluctuate, sometimes considerably, by industry sector (Table 3.9). Workers in declining sectors are in fact much more likely to combine a low literacy proficiency level with less regular use of reading in their jobs. Conversely, workers in these sectors are less likely to be in a situation in which there is a match between a high skill level and regular use of written materials at work than those in sectors with moderate growth.

55. In the interest of readability, we use "skill match" to designate this indicator.
56. Appendix 7 details the methodology used by the authors in developing this definition of skill match.

Table 3.9
Skills match of New Brunswick workers, by industry sector category, 2012

Skill match†	Sectors with very strong growth	Sectors with strong growth	Sectors with moderate growth	Declining sectors (ref.)
	percent			
Match: Weak skills	22.9*	32.5*	26.6*	51.4
Match: Strong skills	35.6	24.3	36.7*	18.3
Mismatch: Deficit	18.0	19.8	18.8	11.7
Mismatch: Surplus	23.5	23.4	17.9	18.5

* significantly different from reference category at a 95% confidence level ($p < 0.05$)

† in light of the Programme for the International Assessment of Adult Competencies (PIAAC) sample size, the data presented in this table represent all New Brunswick workers. This decision was reached for several reasons. First, the size of the sample of New Brunswick francophones was reduced by excluding respondents who were not employed at the time when PIAAC data were collected. Second, mainly because of the sample size, the differences between New Brunswick anglophones and francophones do not appear to be statistically significant

(ref.) reference category

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

The data presented in this table bring back to the contention that having a high proportion of workers whose literacy proficiency level is low could constitute an impediment to higher productivity (OECD, 2013). The data do not establish a cause-and-effect relationship, but it is possible that the high proportion of workers for whom there is a match between low literacy skills and low use of written materials at work in declining sectors has played a role in the failure of these sectors to achieve more growth. Given that recent trends in the New Brunswick economy are fostering the creation of more highly skilled jobs that require both a high level of literacy proficiency and frequent use of written materials, workers in declining sectors could be particularly at risk of losing their jobs or of simply being less able to take advantage of new professional opportunities that arise in future.

3.4.2 Population aging

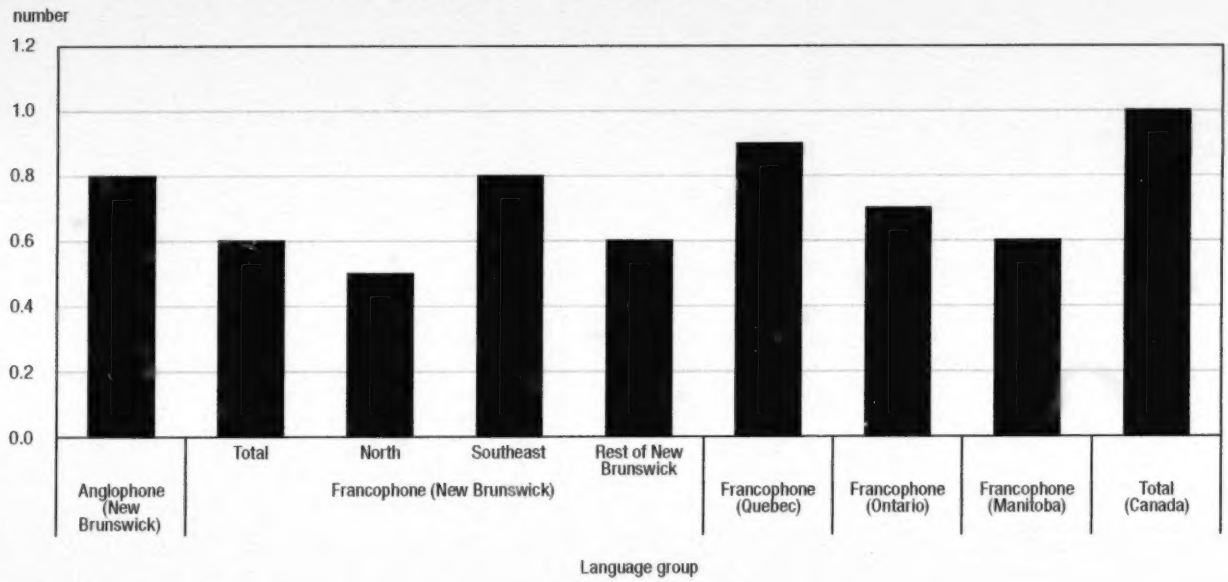
As we saw in the previous chapter, population aging is particularly significant among New Brunswick francophones. This will definitely have an impact on labour needs: aging populations could make it difficult to replace workers who retire, which could hamper a region's economic growth.

Between 2001 and 2011, the number of working-age francophones in New Brunswick, i.e., those in the 15-to-64 age group, decreased by 2.2%, but the number of anglophone counterparts increased by 6.3%. Once again, there are significant regional disparities in that the francophone working-age population in the north decreased by 7.9% between 2001 and 2011, while that in the southeast increased by 8.4%. During the same period, the francophone working-age population in the rest of the province decreased by 3.6%.

Another way of illustrating the effect of population aging on the working-age population involves calculating labour force replacement indexes. This statistical indicator is determined by calculating the ratio of younger populations entering the labour market (aged 20 to 29) to those approaching retirement age (55 to 64 years). A replacement index of 1 means that each person preparing to retire from the labour force is replaced by a younger person. If the index falls below that level, it may mean that the number of people nearing retirement age is higher than the number entering the labour force.[57] Chart 3.5 presents this indicator for the different language groups.

57. Obviously, some workers enter the labour market before age 20, and more and more people are continuing to work past the age of 65, as participation rates by age indicate (Carrière and Galarneau, 2011). Nevertheless, participation rates at these ages are considerably lower than those for people aged 20 to 64, suggesting that the labour force replacement index serves as a good measure of the number of people entering and exiting the labour force on the basis of age.

Chart 3.5
Labour force replacement indexes, by language group and region of residence, 2011



Source: Statistics Canada, 2011 Census.

The main finding that emerges from these results is the generally disadvantageous situation not only for New Brunswick francophones, but also for the other francophone groups with regard to renewal of their working-age population. For every 10 francophones aged 55 to 64 living in New Brunswick, only six are between the ages of 20 and 29. This index rises slightly to 0.8 for New Brunswick anglophones and Quebec francophones, while for the country as a whole, there are almost the same number of people aged 20 to 29 as those aged 55 to 64.

This phenomenon could continue or even become worse in the coming years because of the gradual retirement of the large population of baby boom cohorts, which are being replaced by smaller cohorts. In New Brunswick, labour force replacement could become an even greater challenge for francophones.

As an outgrowth of differing regional trends with regard to demographic behaviour, the labour force replacement index of the francophone population varies substantially from one region to the next. While it stands at 0.8 for francophones in the southeast—a level similar to that of the province's anglophones—it drops to 0.5 among francophones in the north. This means that this region has only five francophones in the 20-to-29 age group for every 10 francophones aged 55 to 64.

Because of population aging, francophone communities will likely be confronted with substantial challenges in finding workers, and those challenges could be especially significant for communities in the north. The difficulties in recruiting a skilled labour force could get in the way of business creation. Insofar as having a pool of potential workers whose skill levels match the needs of businesses is a determining factor in job creation, population aging represents a particularly significant issue with regard to the economic vitality of a region.

3.4.3 Interprovincial migration

According to various demographic and economic theories, migration is a personal response to an imbalance, essentially economic, between a source region and a destination region (Hou and Beaujot, 1995; Finnie, 2000). Empirical studies on interprovincial migration tend to confirm these theories in that this phenomenon is associated with the provincial unemployment rate, the collection of employment insurance benefits (Finnie, 2000) and regional economic shocks (Bernard, 2011), for example. Interprovincial migration is also correlated with strong growth in earnings, in particular among younger migrants (Bernard et al., 2008). Along with economic motivations, there are other reasons to migrate, such as pursuing postsecondary studies or following a spouse or friends. With

regard to francophone minorities, data from the Survey on the Vitality of Official-Language Minorities (SVOLM) have revealed that, while work is the main reason that people give for contemplating the possibility of migration, linguistic environment also appears to be a factor that can influence the intention to move (Gilbert et al., 2014).

As we saw earlier, New Brunswick francophones have experienced certain difficulties in the labour market, and the most negative net migration rates among young francophones have been observed in the Atlantic region (Pépin-Filion et al., 2015: 86). Interprovincial migrants are also more likely to be highly educated young adults (Dion and Coulombe, 2008), and negative net migration is often perceived as hindering a community's development. Although interprovincial in-migrants and out-migrants tend to be in the same industry sectors, the data in Table 3.10 reaffirm the extent of the disparities that exist between francophone migrants and non-migrants. In fact, 1 out of 10 who left were employed in sectors showing very strong growth in New Brunswick, whereas this was the case for 6.0% of non-migrants. Conversely, close to 20% of non-migrants worked in declining sectors, a fate shared by just under 12% of interprovincial in-migrants and out-migrants. These disparities were significantly smaller among anglophone workers.

Table 3.10
Characteristics of New Brunswick francophones and anglophones, by cumulative migration status[1], 2011

	Cumulative interprovincial migration						
	In-migrants		Out-migrants		Net interprovincial migration	Non-migrants (cumulative)	
Characteristics	number	percent	number	percent	number	number	percent
Francophones							
Industry sector by growth in number of jobs							
Sectors with very strong growth	1,040	7.3	3,855	10.4	-2,810	7,230	6.0
Sectors with strong growth	2,765	19.3	7,325	19.7	-4,560	27,610	23.0
Sectors with moderate growth	8,815	61.6	21,600	58.1	-12,780	62,790	52.4
Declining sectors	1,700	11.8	4,380	11.8	-2,680	22,300	18.6
Total	**14,315**	**100.0**	**37,160**	**100.0**	**-22,840**	**119,930**	**100.0**
Anglophones							
Industry sector by growth in number of jobs							
Sectors with very strong growth	7,205	11.6	12,155	11.7	-4,940	21,445	10.1
Sectors with strong growth	9,795	15.7	18,055	17.3	-8,260	42,135	19.9
Sectors with moderate growth	39,660	63.6	62,715	60.1	-23,050	120,955	57.1
Declining sectors	5,705	9.1	11,340	10.9	-5,630	27,310	12.9
Total	**62,370**	**100.0**	**104,260**	**100.0**	**-41,890**	**211,845**	**100.0**

1. The cumulative interprovincial in-migrants are those who live in New Brunswick but were born elsewhere in Canada. The cumulative interprovincial out-migrants are those who were born in New Brunswick but who live elsewhere in Canada. Only people born in Canada are counted in these two categories.

Source: Statistics Canada, 2011 National Household Survey.

These results indicate that there was a supply of workers within the francophone population born in New Brunswick for these expanding industry sectors. Although it is not possible to determine with certainty whether they moved away from New Brunswick to attend school or to work, two-thirds of out-migrants working (outside New Brunswick) in sectors with very strong growth in New Brunswick earned their highest postsecondary degree outside New Brunswick.

In the previous chapter we saw the extent of the loss of New Brunswick francophones through migration and its demographic consequences, with regard to population aging in particular. The differences between in-migrants and out-migrants, which exert a negative impact on New Brunswick francophones in terms of education and literacy skills, also present economic challenges. Out-migration deprives New Brunswick's francophone community of a young, skilled and educated component of its population. It thus decreases the labour pool that could attract new businesses.

3.4.4 Economic performance of immigrants

Because of their concentration in the Moncton area and their higher education levels, immigrants tended not to work in the same industry sectors as non-immigrants (Table 3.11). Immigrants, and recent immigrants in particular (17.3%), were much more likely to work in sectors with very strong growth than non-immigrants (6.2%). Conversely, there were proportionally fewer immigrants than non-immigrants working in declining sectors. This was especially true of recent immigrants and non-permanent residents, of whom close to 5% worked in these sectors compared with over 15% of the non-immigrant labour force.

Table 3.11
Distribution of New Brunswick's francophone population, by immigrant status and industry sector category, 2011

Characteristics	Immigrants			Non-permanent residents	Non-immigrants
	Established immigrants (before 2000)	Recent immigrants (2000 to 2011)	Total		
			number		
Total counts	**1,920**	**1,205**	**3,125**	**420**	**227,595**
			percent		
Sectors with very strong growth	5.8	17.3	**10.2**	24.4	6.2
Sectors with strong growth	21.9	15.7	**19.5**	24.9	22.6
Sectors with moderate growth	55.7	62.9	**58.4**	45.5	53.4
Declining sectors	16.6	4.2	**11.9**	5.2	17.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Statistics Canada, 2011 National Household Survey.

There are other socioeconomic indicators that attest to major differences among immigrants, non-permanent residents and the rest of the francophone population. The data in Table 3.12 show how well immigrants performed in the labour market as well as the gap between recent and established immigrants in that regard. For example, not only was the unemployment rate of francophone immigrants five percentage points lower than that of non-immigrants, but it was also below that of anglophone immigrants (9.0%). This positive performance on the labour market stemmed mainly from the performance of established immigrants, whose unemployment rate (3.6%) was lower than that of non-immigrants and established anglophone immigrants (7.7%). The performance of established immigrants in New Brunswick whose first official language spoken was French stands in contrast to that of immigrants in Canada as a whole in that, at the national level, established immigrants post lower employment rates and higher unemployment rates than people born in Canada (Yssaad, 2012).

Table 3.12
Labour market characteristics of New Brunswick francophones, by immigrant status, 2011

Characteristics	Immigrants			Non-permanent residents	Non-immigrants
	Established immigrants (before 2000)	Recent immigrants (2000 to 2011)	Total		
			percent		
Unemployment rate[1]	3.6	13.6	**7.5**	12.0	12.5
Employment rate[1]	61.0	70.8	**64.2**	59.5	54.9
Participation rate[1]	63.3	82.0	**69.4**	67.6	62.8
Level of complexity of position according to 2011 National Occupational Classification					
Level of complexity A: Managers	12.0	8.3	**10.6**	4.9	7.4
Level of complexity A: Professionals	25.4	28.8	**26.7**	7.9	13.8
Level of complexity: College or apprenticeship	29.3	22.9	**26.9**	25.2	32.3
Level of complexity: Secondary school or specific job training	24.0	24.5	**24.2**	49.5	30.4
Level of complexity: On-the-job training	9.2	15.5	**11.8**	12.5	16.1

[1] these statistics have been taken from the National Household Survey in order to produce them for the different language groups studied. Accordingly, they are slightly different from the statistics from the Labour Force Survey

Source: Statistics Canada, 2011 National Household Survey.

However, the more recent cohorts of francophone immigrants are finding it even more difficult to access New Brunswick's labour market. For example, the unemployment rate for recent immigrants (13.6%) surpassed that of non-francophone immigrants and that of recent immigrants whose first official language spoken was English (11.4%). This was the case in spite of their extremely high education rates and the fact that most of them lived in the Moncton area, one of the most dynamic parts of the province. These statistics suggest that, while established immigrants have been effective in accessing New Brunswick's labour market, more recent francophone immigrants might be experiencing difficulties similar to those of their counterparts in the rest of the country in this regard (for example, in relation to recognition of credentials, diplomas and degrees, overqualification and language barriers).

The data presented in Table 3.12 also indicate that immigrants held a larger number of professional positions, which are associated with higher levels of complexity. For lasting integration, the labour market must offer employment opportunities that can attract and retain immigrants. However, it can be seen that a substantial proportion of francophone immigrants admitted to New Brunswick left the province after they arrived. As we saw

in Chapter 2, close to half of the francophone immigrants admitted to New Brunswick between 2000 and 2011 who were still in Canada in 2011 were living elsewhere in the country. This proportion surpassed that of anglophone immigrants, and New Brunswick therefore seems to be finding it particularly difficult not only to attract but also to retain francophone immigrants. Economic immigrants appear to be especially likely to leave the province. Given that immigrants in this category are expected to contribute to the economic prosperity of their communities, the departure of a substantial portion of these immigrants represents a major loss for New Brunswick.

Because of their very high education levels, immigrants performed better than Atlantic residents born in Canada on the PIAAC literacy test. While lower than those of established immigrants, the scores of immigrants admitted between 2000 and 2011 were nonetheless similar to those of non-immigrants in the Atlantic region. Accordingly, Atlantic immigrants seemed to be less affected by the obstacles that Canadian immigrants generally face in terms of literacy proficiency, with regard to official language proficiency in particular.

However, despite a relatively high level of literacy proficiency, immigrants nevertheless encountered a number of obstacles to their economic and social integration. While francophone established immigrants performed very well on the labour market, immigrants who had arrived recently in Canada were more often unemployed, and their employment incomes were lower than those of non-immigrants. Because most of them settled in the Moncton area, they faced a two-fold challenge, that of having to master English well enough to become part of a labour market that is primarily English speaking while integrating into the local francophone community. The NHS data indicate that only 6 in 10 francophone immigrants admitted to Canada between 2000 and 2011 were able to hold a conversation in English. A substantial increase in the number of francophone immigrants in the coming years could aggravate the integration issues that immigrants face.

While one-third of francophones lived in the Moncton area, close to two-thirds of recent immigrants had settled there. Conversely, the north had over half of the province's francophone population but became home to only 20% of immigrants admitted between 2000 and 2011. There is thus reason to wonder whether immigration could add to the significant regional disparities that already exist among the various francophone communities in the province and to what extent the north could benefit from the contribution of new immigrants as a way of revitalizing the communities in this region.

3.5 Conclusion

The skills-related difficulties encountered by New Brunswick francophones are primarily associated with a generally negative situation on the labour market. The main reason for these difficulties is not so much their lower levels of education but rather their geographic concentration in the more rural areas in the northern part of the province. Because of these two factors, a major portion of the francophone labour force works in industry sectors that are in decline, such as forestry and manufacturing, in the north in particular. Conversely, francophones tend to be under-represented in a number of emerging sectors in which the number of jobs has increased considerably over the past two decades, such as business services. Given that these sectors generally require a highly skilled labour force, francophones could have difficulty accessing the new jobs that will be created in these sectors.

The especially low performance of workers in declining industry sectors, with regard to both skills and literacy practices, are worthy of attention. The number of jobs in those sectors, where francophone workers are overrepresented, has been decreasing for a number of years. These workers, who tend to be less educated and older and many of whom reside in the north, could be at even greater risk of losing their jobs or having to retrain for another career. The literacy-related difficulties they face could reduce their chances of successfully transitioning in an economy in which the demand for skills is becoming increasingly sophisticated. While the changes in New Brunswick's economy are associated with a downturn in certain sectors, they have created a number of professional opportunities in a broad range of industry sectors. Workers in sectors with very strong growth are distinguished by a high level of literacy proficiency.

The interconnections among literacy skills, demographics and the labour market are complex but significant. Examples of skill match, population aging, interprovincial migration and immigration show the importance of taking all of these dimensions into account in order to foster the economic development of New Brunswick's francophone communities. However, in many respects the vitality of these communities also encompasses cultural and linguistic vitality. The demographic dynamics of the francophone population, in terms of both internal mobility

and international migration, tend to have a negative impact on the places where francophones are in the majority and to favour those where they are in the minority. Accordingly, the decline in their population in the north, alongside the relatively sustained growth in the southeast, points to a gradual shift from francophone centres in a region in which they are in the majority to one where they are in the minority.

If these demographic dynamics continue in the future, they could raise a number of issues relating to the vitality of the French language. Obviously, the use of French at work tends to be less predominant among francophones in the southeast than those in the north. For example, 9 out of 10 francophone workers in the north used French most often at work, either alone or in conjunction with another language, while this was the case for only two-thirds of francophone workers in the southeast.[58]

The influence of English in the lives of francophones residing in mostly anglophone communities can also be seen in the language that francophones chose to take the PIAAC proficiency tests. Just over 45% of New Brunswickers whose first official language spoken was French took the tests in English.[59] This proportion ranged from 17.1% in the north to over 70% in the other parts of the province. These substantial regional differences constitute another indicator of the complexity of francophones' relationship with English, at least when it comes to written materials.

In fact, francophones possess a major asset in the labour market: bilingualism. English-French bilingualism is indeed one of the skills that the province's employers are most interested in (Government of New Brunswick, 2014c). Three-quarters of New Brunswickers aged 15 to 64 whose first official language spoken was French were bilingual, compared with less than 20% of those whose first official language spoken was English. This is therefore an advantage that francophone communities can count on to attract certain businesses.

58. Francophones in the southeast predominately use French at home. Just over 85% of them spoke French most often at home, alone or with another language. However, the corresponding percentage for francophones in the north was nearly 10 percentage points higher.
59. In other words, this result means that just under half of New Brunswickers whose first official language spoken was French were assessed for their ability to process written information in English. Francophones who took the tests in French performed less well on the literacy test than those who took the tests in English. This gap persists to some extent even though the effects of respondents' characteristics, including region of residence and education level as well as the frequency of reading-related activities, were taken into account.

Conclusion

Strong literacy, numeracy and problem-solving skills are considered increasingly essential to fully integrate the labour market and participate actively in society. They are in fact associated with a number of positive social and economic circumstances such as higher income or greater social trust. In addition, these skills are particularly important to the cultural and linguistic vitality of minority francophone communities.

Although the situation of New Brunswick francophones has changed since the work of the Dunton-Laurendeau Commission in the 1960s, data from the Programme for the International Assessment of Adult Competencies (PIAAC) reveal that they continue to perform far less well on proficiency tests than their anglophone counterparts and francophones from Quebec, Ontario and Manitoba. More than 60% of the province's francophones scored in the lower range of the literacy and numeracy scales, thereby attesting to the skills-related difficulties that a substantial segment of this population encounters.

These difficulties are part of a broader dynamic that includes negative socioeconomic circumstances and demographic dynamics that interfere with the economic and social development of New Brunswick's francophone population. This report has endeavoured to pinpoint the connections between the skills-related issues that are unique to the province's francophones and those associated with demographic conditions and the labour market.

The development and maintenance of strong literacy skills require both a high level of education and the regular practice of reading-related activities throughout life. In both cases, New Brunswick francophones still find themselves at a disadvantage in relation to their anglophone counterparts. Education is the cornerstone of skills development, as attested by the very clear gradient of literacy proficiency level in relation to education level. Despite the substantial progress that has been made with regard to education, New Brunswick francophones remain less educated not only than their anglophone counterparts but francophones in other provinces as well, in part as a result of migratory losses. This divide still exists among the younger generations, who are more likely to migrate. These low education levels partly explain the lower performance of francophones on the PIAAC proficiency tests.

In addition to these direct benefits for the literacy proficiency level of francophones, education is also closely tied to the development of behaviours and attitudes that foster the maintenance of skills throughout life. New Brunswick francophones find themselves in a negative position from the standpoint of both education and reading behaviours. These results suggest that a substantial number of New Brunswick francophones are continuing to have difficulties in entering into the "virtuous circle of literacy" and appear to be particularly vulnerable to seeing their skills, which were already lower, slip away over time.

While the experience of New Brunswick francophones in terms of education in the minority language differs substantially from that of the other minority francophone communities, postsecondary education in French remains a key issue in New Brunswick. This definitely contributes to New Brunswick's loss through migration, in the northern part of the province in particular. In this perspective, it thus becomes essential for communities in this region to find ways to help these postsecondary graduates return to the region of their birth, or at least attract newcomers in order to compensate for migration losses among people with a higher level of education.

Given that they primarily involve highly educated young adults, losses through interprovincial migration serve not only to slow the growth of the francophone population but also to deprive it of some of its more productive elements. Migration dynamics tend to exacerbate the aging of New Brunswick's francophone population. Population aging also has a bearing on the francophone labour force. Not only is the population of francophone workers becoming increasingly older, but their numbers are decreasing. The decline in the number of working-age francophones, which is especially pronounced in the north, is likely to interfere with the development of these communities.

Lower education levels are also a factor in the performance of francophone workers on the labour market, which tends to be lower than those of their anglophone counterparts. The substantial number of francophone workers who held positions with lower levels of complexity and pay and who made less use of their literacy skills is linked to this undereducation. With the changes in the New Brunswick economy, the employment opportunities available to francophones in the coming years will generally call for a high level of skills.

Along with the issues associated with labour force training are retention issues. The fact that close to a quarter of university graduates born in New Brunswick left the province a few years after receiving their degrees (Calhoun, 2013) speaks to the magnitude of the challenge of retaining a highly educated labour force. Over time, an appreciable segment of the francophone population born in New Brunswick has moved to another part of Canada, mainly Quebec. These movements tend to play a moderate role in the lower performance of this population on the PIAAC tests and to reduce the pool of skilled labour in various communities, which in turn is likely to discourage some businesses from setting up shop there. At the same time, these migration dynamics implicitly bear out the fact that a considerable number of francophones born in New Brunswick have high literacy proficiency levels. However, in light of its relatively low education levels and its population aging, New Brunswick's francophone population is particularly vulnerable to the loss of a portion of its educated youth.

Lastly, the results presented throughout this report are evidence of the size of the gap that separates the north from the rest of the province from the standpoint of economic and social development in relation to the three areas of focus in this analysis. The economy of this region is having difficulty overcoming its reliance on the primary sector. As a result, not only does it offer fewer professional opportunities, but the jobs tend to be lower paying and to call for a lower level of education, and many of them are found in sectors in decline. At the same time, the north is losing a substantial number of francophones to other parts of the province and to the rest of Canada. These people are likely drawn by better economic prospects but also the presence of postsecondary institutions. These francophones tend to have higher education and literacy proficiency levels, and thus the north is being drained of some of its most productive elements. These communities are also having trouble attracting francophones from the rest of the country and immigrants to mitigate the effects of these departures. This situation is reducing the size of the labour pool and the diversity of skills in the north, factors that are sure to reduce its appeal to employers. The francophone population in the north is thus aging and less educated and performed less well on the PIAAC literacy test. The deficit in terms of university education level among francophones in the north is also perceptible among younger generations, indicating that this unfavourable situation could persist for a number of years.

Reversing the trends

The inextricable interconnections between the issues New Brunswick francophones are facing with regard to the labour market, demographics and skills are obvious. Given that a highly skilled population constitutes one of the keys to social and economic development for francophone communities, favourable conditions need to be put in place to enable francophones to take advantage of their skills.

International migration appears to be one of the solutions advocated by a number of government and community stakeholders to address the demographic issues that New Brunswick francophones are facing. New Brunswick could offer francophone newcomers to Canada a favourable linguistic environment should they wish to study, work and live in French. Vitality indicators show that New Brunswick's francophones, particularly those from the province's north, are faring quite well relative to other francophone minoritiy communities in Canada. A sustained increase in francophone immigration could affect the decline in the demographic weight of the province's francophone population and increase the pool of highly educated francophone workers. However, attracting and retaining immigrants presents a major issue as well.

Establishing an economic climate conducive to the creation of worthwhile employment opportunities could likely lead to the attraction and retention of a young and educated labour force. While the province's major urban centres are able to count on a more dynamic local economy, the outlying and rural areas are having greater difficulty adjusting to the changes in the province's economy. The situation of communities in the north is therefore of particular relevance in this regard, because most of the interprovincial losses are in this region. It is thus important to break this vicious circle in which a lack of economic opportunity leads to the departure of skilled workers, thus discouraging some employers from setting up in these regions and exacerbating the lack of opportunity.

Education is truly a major driver of economic and social development. According to Landry (2005), education is key to the vitality of New Brunswick's francophone communities: "'life-long' education, from early childhood to the golden years, can be the cornerstone of this revitalization [of the francophone and Acadian communities], but it must be part of a whole, of a comprehensive and concerted plan that would bring together government and community stakeholders."

Skills development is of pivotal importance here, to help francophone workers access these jobs and to create a pool of skilled workers and thus encourage employers to establish their businesses in regions where francophones live. From a broader perspective, skills development is also a crucial instrument for increasing the productivity of the labour force, which in itself is an important tool in the province's economic development. A strong and diversified economy will enable skilled workers to put their skills to good use and ensure that they do not leave New Brunswick.

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Appendix 1

Definition of language groups

Establishing a criterion for defining a language group is no mean feat, given that languages and linguistic practices are the product of highly complex cultural, historical, political and social dynamics. Accordingly, there is no prescribed way of defining language groups.[60]

The notion of mother tongue has often been used as a criterion for defining language groups because it has been available through the census for over 50 years and through numerous social surveys. However, this definition presents certain limitations, which are becoming increasingly significant as Canada's linguistic landscape becomes more diversified as a result of immigration. For example, it does not take into account the official language spoken by immigrants whose mother tongue is neither English nor French or people who are no longer capable of holding a conversation in their mother tongue.

To be consistent with the definition used in the *Official Languages Act* to assess potential demand for services in either official language and in numerous research studies on the country's linguistic situation, language groups are defined on the basis of the first official language spoken. When this criterion is used, over 99% of New Brunswick's population is assigned to one of the country's two main language groups. This definition is based primarily on knowledge of the official languages. A person who is able to converse in only one of the two official languages is automatically assigned that language as the first official language spoken. For people who are able to hold a conversation in French and English or in neither of the two languages, the first official language spoken is determined based on the person's mother tongue and, as a last resort, the language spoken most often at home. Even when this information is used, it may not be possible to assign a first official language spoken to certain people, who are then classified as "English and French" or "neither English nor French",[61] as the case may be (Statistics Canada, 1989).

60. See Lachapelle and Lepage (2010) and Lepage et al. (2011) for a more extensive discussion of the different definitions and criteria for identifying language groups.
61. The procedures for deriving first official language spoken are available on the Statistics Canada website: http://www.statcan.gc.ca/eng/concepts/definitions/language05 (accessed July 10, 2015).

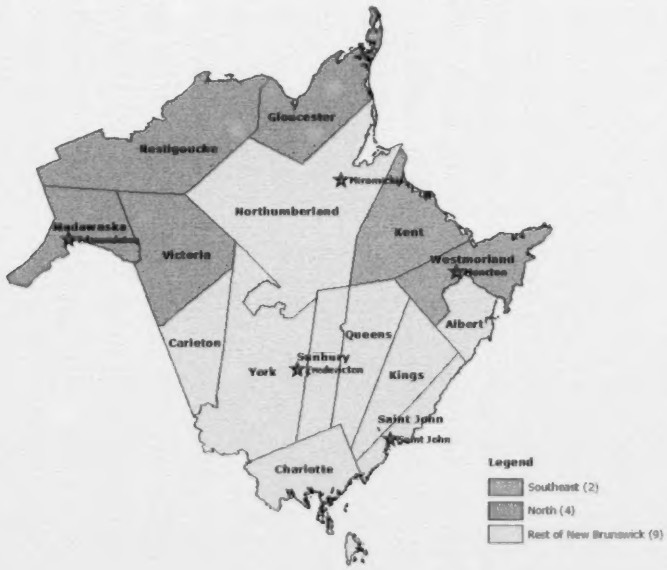
Appendix 2

Table A2
New Brunswick francophone population and proportion of total population, by region and census division, 2011

Region and census division	Number of francophones	Total count	Proportion of francophones
	number		percent
New Brunswick	**235,702**	**739,890**	**31.9**
North	124,461	160,420	77.6
Victoria	8,463	19,675	43.0
Madawaska	30,830	32,520	94.8
Restigouche	20,385	31,660	64.4
Gloucester	64,783	76,565	84.6
Southeast	81,486	171,570	47.5
Westmorland	59,933	141,225	42.4
Kent	21,553	30,345	71.0
Rest of New Brunswick	29,755	407,900	7.3
Saint John	3,248	75,295	4.3
Charlotte	523	26,220	2.0
Sunbury	2,350	27,080	8.7
Queens	435	10,880	4.0
Kings	2,248	69,240	3.2
Albert	1,830	28,615	6.4
Northumberland	12,168	47,525	25.6
York	6,500	96,365	6.7
Carleton	453	26,680	1.7

Note: "Francophone" is defined on the basis of the criterion of first official language spoken, with equal distribution of the "English and French" category.
Source: Statistics Canada, 2011 Census.

Map A2
Census divisions, by region, New Brunswick, 2011



Source: Statistics Canada, 2011 Census.

Appendix 3

A significant limitation of PIAAC with regard to examining skills by language group is that it is not possible for the first official language spoken to be derived similarly to what is done in the census.[62] To get around this limitation, a record linkage was performed between PIAAC and the 2011 Census. This innovative strategy makes it possible to combine information from the two sources, so that the census-based concept of first official language spoken can be directly used to define the language groups being studied.

Overall, the linkage rate is 95.5%, meaning that information from more than 26,000 PIAAC respondents was successfully linked with census data. The linkage rates are slightly lower for younger respondents, respondents living in the territories and those with a mother tongue other than English or French, although they are nevertheless close to 90%.

The PIAAC team oversampled official-language minorities. This strategy makes it possible to conduct more detailed analyses for these groups. However, despite this oversampling, and as the table below shows, the number of respondents belonging to a linguistic minority group is still fairly small.

Table A3.1
Number of respondents linked by province of residence and first official language spoken, Canada outside Quebec, provinces and territories, 2012

Province or territory of residence	English	French	English and French	Neither English nor French	Total
			number		
Newfoundland and Labrador	1,550	5	0	0	**1,555**
Prince Edward Island	861	35	0	0	**896**
Nova Scotia	1,322	50	3	0	**1,375**
New Brunswick	793	845	2	1	**1,641**
Quebec	885	4,565	236	16	**5,702**
Ontario	4,065	850	39	53	**5,007**
Manitoba	1,455	748	2	4	**2,209**
Saskatchewan	1,495	21	2	1	**1,519**
Alberta	1,120	26	6	8	**1,160**
British Columbia	2,390	33	20	64	**2,507**
Yukon	733	30	1	0	**764**
Northwest Territories	794	20	2	1	**817**
Nunavut	659	13	3	7	**682**
Canada outside Quebec	17,237	2,676	80	139	**20,132**
Not stated	124	27	1	39	**191**
Total	**18,246**	**7,268**	**317**	**194**	**26,025**

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

The PIAAC sample includes 845 New Brunswickers whose first official language spoken is French. This number is sufficient to examine various aspects of literacy; however, it limits more detailed analyses, such as the simultaneous cross-tabulation of several variables.

62. Not only is information on knowledge of official languages not directly available, but the other language variables necessary for deriving the first official language spoken are not collected and measured in the same way as in the census.

Table A3.2
Distribution in the Programme for the International Assessment of Adult Competencies (PIAAC) sample (in %) and linkage rates (in %) between PIAAC and the 2011 Census for selected sociodemographic characteristics

Characteristics	Distribution	Linkage rate
	percent	
Overall linkage rate	**100.0**	**95.5**
Age group		
15 to 24 years	17.2	91.9
25 to 34 years	17.2	92.5
35 to 44 years	20.1	96.1
45 to 54 years	23.3	97.4
55 to 64 years	22.2	98.1
Sex		
Male	46.4	95.0
Female	53.4	96.0
Province or territory of residence		
Newfoundland and Labrador	5.9	97.4
Prince Edward Island	3.4	96.9
Nova Scotia	5.3	95.8
New Brunswick	6.2	97.9
Quebec	21.5	97.1
Ontario	19.2	95.7
Manitoba	8.4	96.5
Saskatchewan	5.8	95.5
Alberta	4.5	95.5
British Columbia	9.9	93.1
Yukon	3.0	92.6
Northwest Territories	3.4	89.2
Nunavut	2.8	88.2
Not declared	0.8	89.7
Mother tongue		
English	54.0	95.8
French	25.8	97.9
Other	19.3	91.6
Don't know/Not declared	0.8	89.3

Note: Data shown here are not weighted.
Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Appendix 4

Table A4.1

Literacy – Description of Programme for the International Assessment of Adult Competencies proficiency levels, 2012

Level	Score range
Below 1	**0-175**

The tasks at this level require the respondent to read brief texts on familiar topics to locate a single piece of specific information. There is seldom any competing information in the text and the requested information is identical in form to information in the question or directive. The respondent may be required to locate information in short continuous texts. However, in this case, the information can be located as if the text were non-continuous in format. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features. Tasks below Level 1 do not make use of any features specific to digital texts.

1 **176-225**

Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Some tasks, such as those involving non-continuous texts, may require the respondent to enter personal information onto a document. Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognizing basic vocabulary, determining the meaning of sentences, and reading paragraphs of text is expected.

2 **226-275**

At this level the medium of texts may be digital or printed, and texts may comprise continuous, non-continuous, or mixed types. Tasks in this level requi re respondents to make matches between the text and information, and may requi re paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to:

- cycle through or integrate two or more pieces of information based on criteria;
- compare and contrast or reason about information requested in the question;
- navigate within digital texts to access and identi fy information from various parts of a document.

3 **276-325**

Texts at this level are often dense or lengthy, and include continuous, non-continuous, mixed, or multiple pages of text. Understanding text and rhetorical structures become more central to successfully completing tasks, especially navigating of complex digital texts. Tasks require the respondent to identify, interpret, or evaluate one or more pieces of information, and often require varying levels of inference. Many tasks require the respondent to construct meaning across larger chunks of text or perform multi-step operations in order to identify and formulate responses. Often tasks also demand that the respondent disregard irrelevant or inappropriate content to answer accurately. Competing information is often present, but it is not more prominent than the correct information.

4 **326-375**

Tasks at this level often require respondents to perform multiple-step operations to integrate, interpret, or synthesize information from complex or lengthy continuous, non-continuous, mixed, or multiple type texts. Complex inferences and application of background knowledge may be needed to perform successfully. Many tasks require identifying and understanding one or more specific, non-central ideas in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent. Competing information is present and sometimes seemingly as prominent as correct information.

5 **376-500**

At this level, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidenced-based arguments. Application and evaluation of logical and conceptual models of ideas may be required to accomplish tasks. Evaluating reliability of evidentiary sources and selecting key information is frequently a key requirement. Tasks often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialized background knowledge.

Source: Statistics Canada. 2013. *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies*. Statistics Canada Catalogue no. 89-555-X.

Table A4.2

Numeracy – Description of Programme for the International Assessment of Adult Competencies proficiency levels, 2012

Level	Score range
Below 1	**0-175**
Tasks at this level require the respondents to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognizing common spatial representations in concrete, familiar contexts where the mathematical content is explicit with little or no text or distractors.	
1	**176-225**
Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit with little text and minimal distractors. Tasks usually require simple one-step or simple processes involving counting; sorting; performing basic arithmetic operations; understanding simple percents such as 50%; or locating, identifying and using elements of simple or common graphical or spatial representations.	
2	**226-275**
Tasks in this level require the respondent to identify and act on mathematical information and ideas embedded in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors. Tasks tend to require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs.	
3	**276-325**
Tasks at this level require the respondent to understand mathematical information that may be less explicit, embedded in contexts that are not always familiar and represented in more complex ways. Tasks require several steps and may involve the choice of problem-solving strategies and relevant processes. Tasks tend to require the application of number sense and spatial sense; recognizing and working with mathematical relationships, patterns, and proportions expressed in verbal or numerical form; and interpretation and basic analysis of data and statistics in texts, tables and graphs.	
4	**326-375**
Tasks at this level require the respondent to understand a broad range of mathematical information that may be complex, abstract or embedded in unfamiliar contexts. These tasks involve undertaking multiple steps and choosing relevant problem-solving strategies and processes. Tasks tend to require analysis and more complex reasoning about quantities and data; statistics and chance; spatial relationships; and change, proportions and formulas. Tasks in this level may also require understanding arguments or communicating well-reasoned explanations for answers or choices.	
5	**376-500**
Tasks at this level require the respondent to understand complex representations and abstract and formal mathematical and statistical ideas, possibly embedded in complex texts. Respondents may have to integrate multiple types of mathematical information where considerable translation or interpretation is required; draw inferences; develop or work with mathematical arguments or models; and justify, evaluate and critically reflect upon solutions or choices.	

Source: Statistics Canada. 2013. *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies.* Statistics Canada Catalogue no. 89-555-X.

Table A4.3

Problem solving – Description of Programme for the International Assessment of Adult Competencies proficiency levels, 2012

Level	Score range
Non-respondents	...
This category includes those individuals who did not report previous computer experience, did not pass the ICT core test, or opted not to be assessed by a computer-based test.	
Below 1	**0-240**
Tasks are based on well-defined problems involving the use of only one function within a generic interface to meet one explicit criterion without any categorical, inferential reasoning or transforming of information. Few steps are required and no sub-goal has to be generated.	
1	**241-290**
At this level, tasks typically require the use of widely available and familiar technology applications, such as e-mail software or a web browser. There is little or no navigation required to access to the information or commands required to solve the problem. The problem may be solved regardless of respondents' awareness and use of specific tools and functions (e.g., a sort function). The tasks involve few steps and a minimal number of operators. At the cognitive level, the respondent can readily infer the goal from the task statement; problem resolution requires the respondent to apply explicit criteria; and there are few monitoring demands (e.g., the respondent does not have to check whether he or she has used the appropriate procedure or made progress toward the solution). Identifying contents and operators can be done through simple match. Only simple forms of reasoning, such as assigning items to categories, are required; there is no need to contrast or integrate information.	
2	**291-340**
At this level, tasks typically require the use of both generic and specific technology applications. For instance, respondents may have to make use of a novel online form. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g., a sort function) can facilitate resolution of the problem. The task may involve multiple steps and operators. The goal of the problem may have to be defined by the respondent, though thecri teria to be met are explicit. There are higher monitoring demands. Some unexpected outcomes or impasses may appear. The task may require evaluating the relevance of a set of items to discard distractors. Some integration and inferential reasoning may be needed.	
3	**341-500**
At this level, tasks typically require the use of both generic and more specific technology applications. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g., a sort function) is needed to make progress toward the solution. The task may involve multiple steps and operators. The goal of the problem may have to be defined by the respondent, and the criteria to be met may or may not be explicit. There are typically high monitoring demands. Unexpected outcomes and impasses are likely to occur. The task may require evaluating the relevance and reliability of information in order to discard distractors. Integration and inferential reasoning may be needed to a large extent.	

... not applicable

Source: Statistics Canada. 2013. *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies.* Statistics Canada Catalogue no. 89-555-X.

Appendix 5

Classification of industry sectors by growth in the number of jobs in New Brunswick between 1994 and 2014.

Sectors with very strong growth: The number of jobs more than doubled in the province between 1994 and 2014.

- Professional, scientific and technical services
- Business, building and other support services

Sectors with strong growth: The number of jobs increased by more than 50% to 100% in the province between 1994 and 2014.

- Construction
- Health care and social assistance

Sectors with moderate growth: The number of jobs in 2014 was more than 90% to 150% of the 1994 level.

- Utilities
- Trade
- Transportation and warehousing
- Finance, insurance, real estate and leasing
- Education services
- Information, culture and recreation
- Accommodation and food services
- Other services
- Government

Declining sectors: The number of jobs decreased by at least 10% in the province between 1994 and 2014.

- Agriculture, forestry, fishing, mining, quarrying and oil and gas extraction
- Manufacturing

Appendix 6

Table A6

Census divisions, by economic region, New Brunswick, 2001

Campbellton-Miramichi
Northumberland
Restigouche
Gloucester
Moncton-Richibucto
Albert
Westmorland
Kent
Saint John-St. Stephen
Saint John
Charlotte
Kings
Fredericton-Oromocto
Sunbury
Queens
York
Edmundston-Woodstock
Carleton
Victoria
Madawaska

Source: Statistics Canada, 2001 Census.

Appendix 7

Skill match

There are a number of ways to measure skill match. For this report, we opted for an indicator based on the work of Desjardins and Rubenson (2011). This approach, which is also based on PIAAC data, divides workers into four groups on two different axes. The first axis represents the complexity of the job and is measured by how often reading is used at work. Respondents who engage in reading at work more often than the Canadian median are classified as making frequent use of reading in their workplace. The rest are classified as not engaging in reading frequently at work. The central hypothesis of this approach is that there is a strong correlation between reading at work and the skill level required to do so. The second axis represents a worker's level of literacy proficiency. Workers can have weak skills, placing them in the lower range of the literacy scale, or strong skills, represented by the higher range of the scale. When the two axes are combined, workers can each be classified according to their skill match/mismatch and their skill level. The following table presents the four scenarios that result from this approach.

Table A7
Classification of workers' skill match according to the Desjardins and Rubenson approach

	Weak literacy skills	Strong literacy skills
Infrequent use of literacy at work	Match: Weak skills	Mismatch: Skill surplus
Frequent use of literacy at work	Mismatch: Skill deficit	Match: Strong skills

Source: Desjardins, Richard and Kjell Rubenson. 2011. "An Analysis of Skill Mismatch Using Direct Measures of Skills." *OECD Education Working Papers*, No. 63, OECD Publishing.

Appendix 8

Table A8

Proportion of Programme for the International Assessment of Adult Competencies sample that did not take problem-solving tests, by language group, New Brunswick, Quebec, Ontario, Manitoba and Canada, 2012

Language group	Proportion that did not take problem-solving tests
Anglophone (New Brunswick)	21.4
Francophone (New Brunswick)	27.6
Francophone (Quebec)	17.6*
Francophone (Ontario)	17.3*
Francophone (Manitoba)	14.7*
Total (Canada)	**18.6***

* significantly different from reference category at a 95% confidence level ($p < 0.05$)

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012.

Appendix 9

Table A9

Characteristics of New Brunswick anglophones, by cumulative migration status, 2011

Characteristics	In-migrants		Out-migrants		Net cumulative interprovincial migration	Non-migrants (cumulative)	
	number	percent	number	percent	number	number	percent
Total	**92,200**	**100.0**	**158,675**	**100.0**	**-66,470**	**382,290**	**100.0**
Province/territory of residence							
Rest of Atlantic	...	...	35,085	22.1	...	...	...
Quebec	...	...	9,260	5.8	...	...	...
Ontario	...	...	63,765	40.2	...	...	...
Manitoba and Saskatchewan	...	...	5,095	3.2	...	...	...
Alberta	...	...	26,425	16.7	...	...	...
British Columbia	...	...	18,160	11.4	...	...	...
Territories	...	...	890	0.6	...	...	...
Age group							
0 to 14 years	8,485	9.2	8,050	5.1	435	71,790	18.8
15 to 24 years	9,940	10.8	11,560	7.3	-1,610	51,645	13.5
25 to 34 years	12,235	13.3	20,760	13.1	-8,520	41,975	11.0
35 to 44 years	16,060	17.4	24,090	15.2	-8,030	47,055	12.3
45 to 54 years	18,250	19.8	32,555	20.5	-14,300	58,510	15.3
55 to 64 years	14,730	16.0	29,180	18.4	-14,450	53,310	13.9
65 to 74 years	7,995	8.7	18,885	11.9	-10,880	32,605	8.5
75 years and older	4,510	4.9	13,600	8.6	-9,080	25,405	6.6
Highest level of educational attainment[1]							
No certificate, diploma or degree	9,830	13.3	21,185	15.2	-11,360	53,315	20.6
High school diploma or equivalent	19,055	25.8	34,575	24.9	-15,510	74,780	28.9
Postsecondary certificate or diploma below bachelor level	27,025	36.6	49,900	35.9	-22,870	94,240	36.4
University certificate or diploma at or above bachelor level	17,875	24.2	33,410	24.0	-15,530	36,515	14.1
Region of residence[†]							
North	4,680	5.1	...	...	...	29,120	7.6
Southeast	22,360	24.3	...	...	...	62,015	16.2
Rest of New Brunswick	65,160	70.7	...	...	...	291,150	76.2

... not applicable

[1] the educational attainment figures presented are for persons aged 25 and over only

[†] figures cannot be obtained at the regional level for cumulative out-migrants given that subprovincial geographies are not available for place of birth in the National Household Survey

Note: The cumulative interprovincial in-migrants are those who live in New Brunswick but were born elsewhere in Canada. The cumulative interprovincial out-migrants are those who were born in New Brunswick but who live elsewhere in Canada. Only people born in Canada are counted in these two categories.

Source: Statistics Canada, 2011 National Household Survey.